MARINE RECORD

ESTABLISHED 1878.

VOL. XXII, No. 4. CLEVELAND---JANUARY 26, 1899---CHICAGO. $2.00 Per Year. Price 10c.

ORIGIN OF THE LAKE CARRIERS' ASSOCIATION.

(Communicated.)

I am asked to prepare for the MARINE RECORD a statement of the origin and early history of the Lake Carriers' Association, of which I was the first secretary. My interests for the last ten years have been in such wholly different lines, and I have so little kept in touch in any way with marine matters, that I am unable to prepare an adequate article; and the difficulty has been increased by the fact that the early letter books and correspondence of the association have been mislaid, and cannot be found in time to be of use for this paper. I can, therefore, present a very imperfect statement only, but can guarantee the accuracy of what follows, so far as it goes. I have quoted freely from the different annual reports prepared by me.

The Lake Carriers' Association was started fourteen years ago—in the spring of 1885. Practically the entire credit for its inception belongs to Mr. Frank J. Firth, of Philadelphia, president of The Erie and Western Transportation Company (Anchor Line, Lake and Rail), a man of astonishing mental vigor, and with the capacity both for broad general views and for enormous detail work.

The necessity for such an organization had so impressed itself upon Mr. Firth's mind that he took occasion on a trip to Chicago (where he had been called to attend a meeting of representatives of lake interests April 14, 1885,) to give some definite thought to the possibility of then bringing about the organization of a lake carriers' association, and thinking that it might be done, he prepared on the train a rough pencil draft of by-laws and organization, and a memorandum of the reasons why such an organization should be perfected. These papers were submitted to the lake representatives present at the Chicago meeting in an informal interview had after the regular meeting. The idea as well as the method proposed met with their cordial approval. Among those present, I think, were Stephen D. Caldwell, Washington Bullard, and Eber Ward (all now deceased).

On his return to Philadelphia Mr. Firth wrote at once to Mr. E. T. Evans, of Buffalo, western manager of the Anchor Line, enclosing articles of association of a lake carriers' association already signed by him on behalf of the Anchor Line, representing 17,549 tons of registered tonnage, and suggesting that Mr. Evans sign for the Anchor Line vessels leased to the Lake Superior Transit Company, and that Mr. James Carey Evans sign for the canal boats of the Canal and Lake Steamboat Company. In the same letter he advised that the signatures be obtained at once of Messrs. Caldwell, Bullard and Ward, of Capt. W. P. Henry of the Lehigh Valley Line, and of such other vessel owners as might be disposed to join in originating the association, and that a meeting be held in Buffalo May 1st for the purpose of completing the formalities of organization, electing officers, etc. He suggested that I be made the secretary of the new association, and I well remember Mr. Evans'tossing the letter over to me with a "Here's some work for you!"

The work of organizing and developing the association lay with me, though with constant advice and guidance asked and received from Mr. Firth. Subscribers to the articles of association were obtained, and I find in a diary of that vear that a meeting was held in Mr. Evans' office May 21, at which I acted as secretary. I think it was at this meeting (the record books, when found, will tell) that the first Board of Managers was chosen, or a number of them, for it was some time before proper representation was secured at all the principal ports. The first Board, when finally made up, was as follows:

BOARD OF MANAGERS 1885-86.

S. D. Caldwell, General Manager Western Transit Company, Buffalo, N. Y.

Washington Bullard, General Manager Union Steamboat Company, Buffalo, N. Y.

W. P. Henry, Superintendent Lehigh Valley Transportation Company, Buffalo, N. Y.

Frank Perew, Buffalo, N. Y.

David Donaldson, Buffalo, N. Y.

James Ash, Buffalo, N. Y.

Frank J. Firth (Philadelphia), President Anchor Line, Erie, Pa.

Thomas Wilson, Manager Wilson's Line, Cleveland O.

Alva Bradley, Cleveland, O.

H. M. Hanna, Cleveland, O.

A. W. Colton, Manager Wabash Lake Line, Toledo, O.

Eber Ward, Manager Ward's Detroit and Lake Superior Line, Detroit, Mich.

James Miller, Manager Detroit Transportation Company, Detroit, Mich.

James Davidson, Bay City, Mich.

Jos. Austrian, General Manager Lake Michigan and Lake Superior Transportation Company, Chicago, Ill.

Ira H. Owen, Superintendent Escanaba and Lake Michigan Transportation Company, Chicago, Ill.

W. M. Egan, Chicago, Ill.

C. W. Elphicke, Chicago, Ill.

R. P. Fitzgerald, Milwaukee, Wis.

David Vance, Milwaukee, Wis.

D. A. Christy, Agent Lake Superior Transit Company, Duluth, Minn.

Mr. Caldwell was made President, and held this position, I believe, until his death. Mr. Firth was made Vice President. At a meeting of the new Board May 23d, Mr. James Carey Evans, then of Buffalo, was made Treasurer, and I was made Secretary.

The purpose of the new organization was, as declared by the constitution, "To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes and the waters tributary thereto, with the intent to improve the character of the service rendered to the public, to protect the common interest of lake carriers, and to promote their general welfare." Organizations of this sort had existed before in the trans-Atlantic and the ocean coastwise trade, and had been very effective in systematizing and perfecting the ocean-carrying business, and protecting it from adverse legislation. Nothing of quite this nature had existed on the lakes, however, though the Cleveland Vessel Owners' Association had done much valuable work ,affecting local interests. There had been combinations of lake carrying interests for particular purposes, to prevent competition, to control rates, etc., but nothing created like this association, to deal only with general questions, affecting the entire lake carrying marine.

The need of some association of the kind was generally admitted. The lake carriers represented important interests, but owing to lack of organization their position and influence had not been properly recognized. For instance, the appropriations from Congress for the ten years 1876-1885 for the Great Lakes had been but one-third those for the Mississippi River alone, though the commerce of the lakes for this period had been five times that of the Mississippi and Ohio combined. Complicated questions also were constantly arising among vessel owners which it was difficult for individuals to adjust satisfactorily without great expense and trouble, but which it was hoped that the new association, aided by the counsel and combined experience of its members, could handle successfully, economically, and rapidly.

The association justified its purpose almost at once, and soon began to be called upon to voice the sentiments of lake vessel owners as a body. It devised a method of arbitration for salvage claims among members by which, in the only case tried during my term of office, a claim of $10,000 for salvage was reduced to $8,000, and, on an appeal, to $5,000, the entire expense of the first arbitration being $62, and of the appeal $88.26. It secured the services of a representative at Washington to watch legislation bearing upon lake interests. It is beyond the scope of this paper to take up in any detail the work even of the opening years of the association, but it was varied and valuable.

The Board of Managers was soon changed to include Oswego among the ports represented, and Thomas Martin was the first manager elected from that city. The number of Vice Presidents was increased to four. It was my custom to send copies of all important correspondence to the four Vice Presidents, thus keeping them fully informed of what was being done. Votes were taken by mail among all the twenty-one managers, on questions upon which there might be a difference of opinion, and in other cases a vote by mail of the whole association was taken. At the close of its first year the association included in its membership over one-fifth of the entire registered vessel tonnage on the Great Lakes, steam, sail and canal. There was at first somewhat of a feeling that it was an affair of the big Buffalo lines, though great pains had been taken to make the management as representative as possible of all interests, large and small. I remained the Secretary of the association for three years, but then became connected with other interests. I was succeeded by Mr. Harry Murphy, of Buffalo, who filled the office one year. My brother, Frederic Almy, was the Secretary for a year, and in January, 1890, Mr. Charles H. Keep was made Secretary, which position he has held ever since.

Buffalo, N. Y. FRANCIS ALMY.

PECULIAR WATER OF THE BLACK SEA.

Some recent explorations have established the fact that the Black Sea, which in some parts has a depth of more than 6,500 feet, is poisoned by sulphuretted hydrogen wherever the water is deeper than1,200 feet, thus accounting for the remarkable phenomenon of there being no organic life below that depth, excepting perhaps some bacteria of very low order, impregnated with sulphur. The causes for this peculiar condition of things are explained by the quick outflow of the fresh water emptied into that sea by the rivers through Bosphorus, while salt water coming from the Mediterranean enters through a deeper current into the depths of the Black sea; this being the case, the waters on the surface are, consequently, controlled absolutely by horizontal currents of considerable force, while vertical currents, which might carry the noxious gases from the bottom to the surface and fresh oxygen from the surface to the bottom, are hardly ever noticeable.

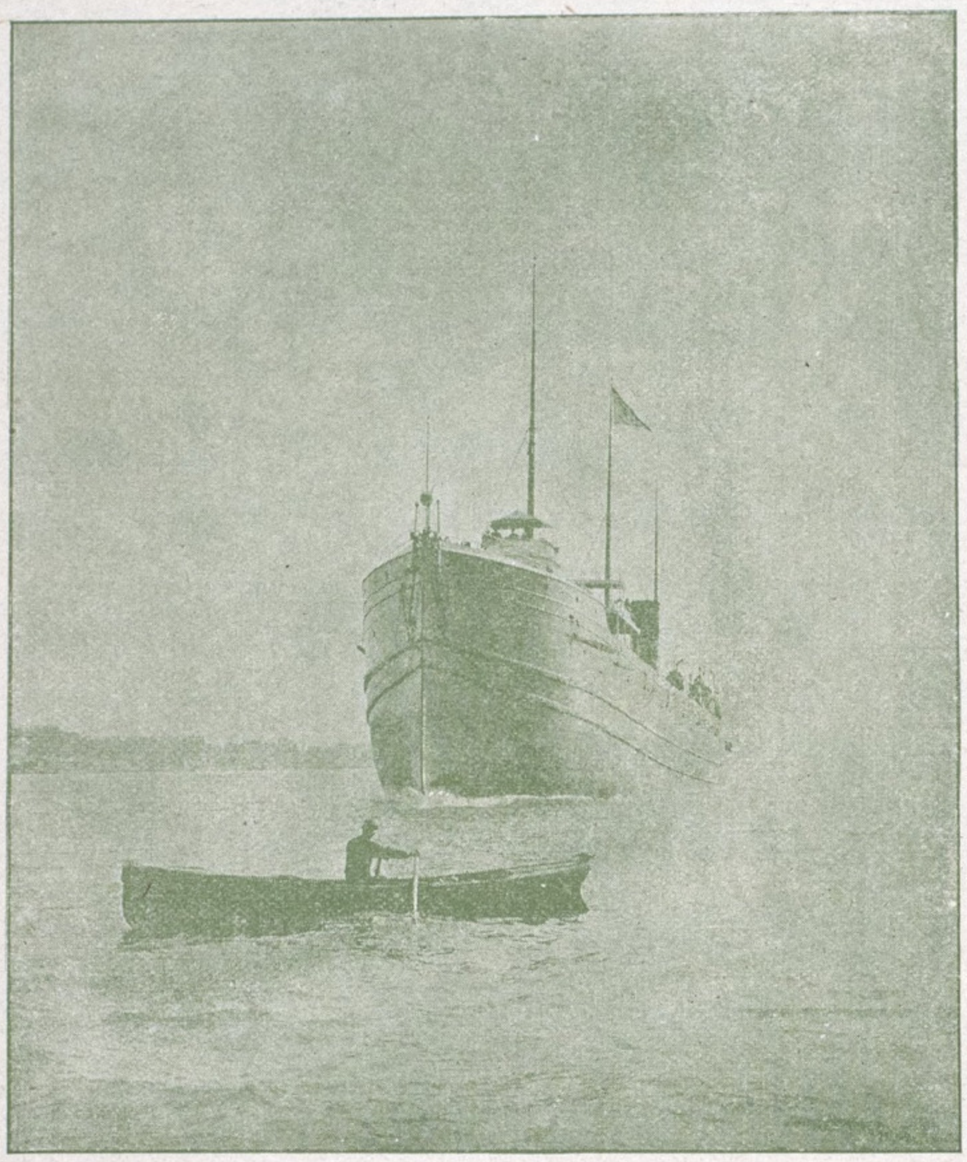
THE Antarctic expedition fitted out by Sir George Newnes under the auspices of the British Royal Geographical Society has reached Hobart, Tasmania, outward bound, on the steamer Southern Cross. It took 100 Esquimaux dogs, the first that ever crossed the equator and reached Hobart with 80 of them alive. This is an important expedition and contains 30 scientific men. It will be back in 1900, the last year of the century.

LLOYD'S shipbuilding returns for the United Kingdom show that the output of the shipyards 1898, including warships, was 802 vessels, aggregating 1,559,125 tons. This surpasses all former records.

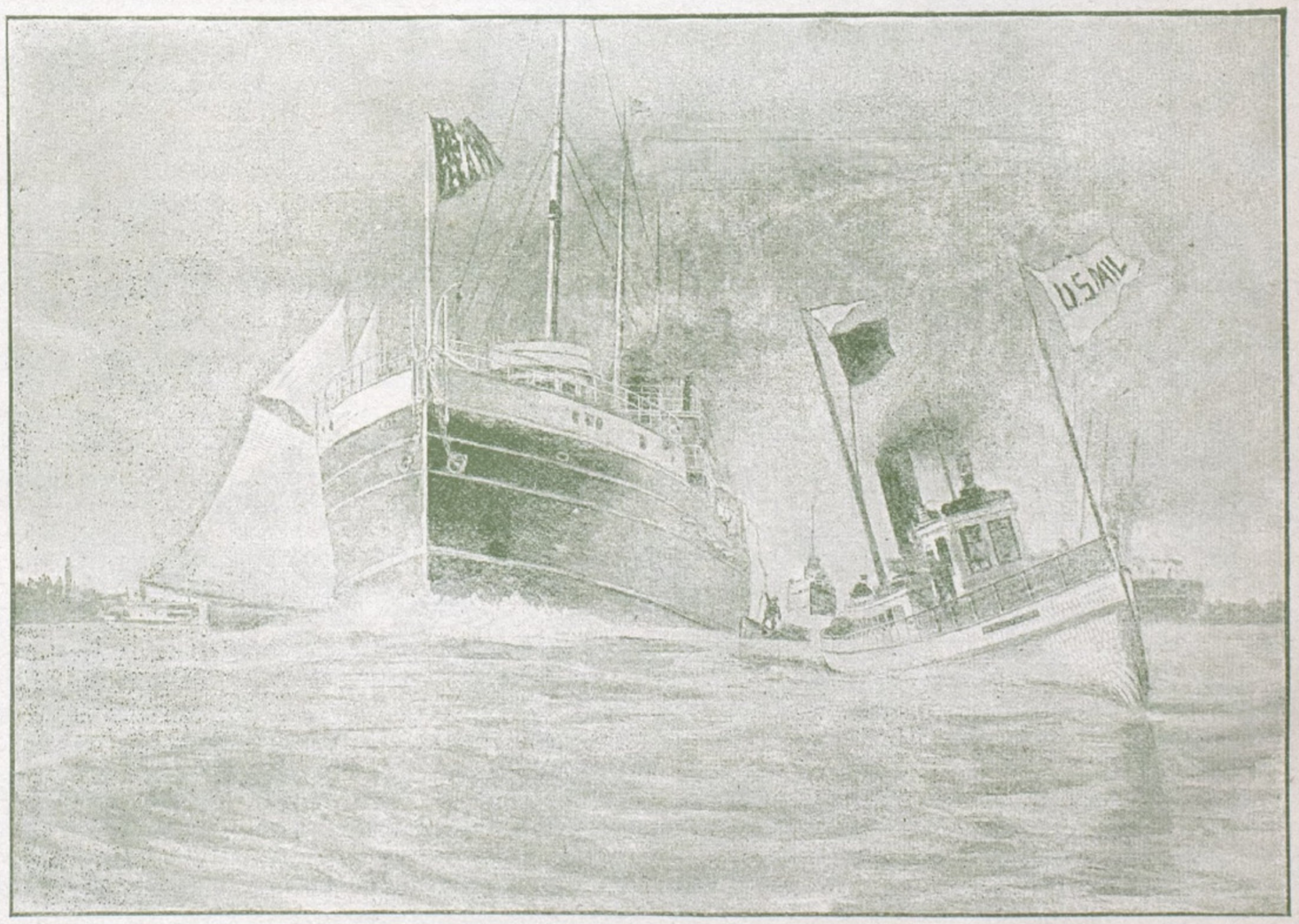
DETROIT RIVER POSTAL SERVICE.

(Illustrated.)

The marine mail delivery at Detroit is a subject of interest, not only to marine men but to others; to the former because of the valuable service that it renders them, and to the latter because of its unique character. There is no service like it in the world. On the barren, rocky, and uninhabitated coast of Terra del Fuego, also in Torres Straits, north of Australia, passing vessels deposit in a box and obtain therefrom mail that other vessels have left there, and thus, without Government aid, maintain a kind of marine postoffice; but at no other place than Detroit does a Government maintain a marine postoffice that makes deliveries upon the water to passing boats under full speed. As many of our readers know, this service is performed by a small steamboat and row-boats. Mail is delivered to the steamboat from the Detroit postoffice, through a station of that office located on the dock. When an approaching vessel or vessels are sighted the mail boat steams into midstream with a carrier on board and towing a rowboat. At the right distance from the approaching vessel the rowboat containing the carrier and mail are dropped astern; the carrier by skillful management of his boat gets under the massive hull of the great freighter, if such it be, riding gracefully over the great swell that she pushes ahead, he drops back to amidships and then, with the skill of long experience, throws his line away up to the deck of the leviathan, where it is quickly made fast by sailors who are on the watch for him. The rowboat drifts for a moment, but suddenly the line tightens and the little boat which has looked like a cockle-shell bobbing up and down beside the mammoth freighter, leaps through the water as if shot from a catapult; meantime a bucket has been lowered, into which mail for the carrier has been placed. He takes this out and puts in the ship's mail, the line is let go and the little boat quickly drops astern, to be again picked up by the steamboat. Sometimes whole fleets are passing Detroit and going in opposite directions. Quick action and rare skill and judgment are required at such times. Then the steamboat makes deliveries to the slow boats, while the carrier in the rowboat takes care of the fast ones. The service during the past two seasons has been equal to every emergency, and failures to deliver are now almost unheard of, the service in this respect far surpassing that upon land. Not only skilled but stout-hearted and sturdy employes are essential in this service. Its hazards and hardships are many, and can only be appreciated by those who have witnessed deliveries made by the brave carriers and sailors of the service upon dark and stormy nights, with the river lashed into a furious sea. It is an undertaking calculated to make the stoutest heart quail; but, from the time the first boat goes up until the last one comes down, no wind or weather stops them. During the past season, Carrier M. L. Randall had a narrow escape from drowning. He was alongside of a big boat upon a dark night, and in a fierce storm, when a great wave washed completely over his little boat, carrying away his oars and lights, leaving him u.terly helpless, and it was only the prompt action of the captain of the mail boat that saved his life.



ROW-BOAT READY TO BOARD.



STEAM TENDER DROPPING THE ROW-BOAT ALONGSIDE.

It seems in place here to give a brief account of the origin of this remarkable service. For many years prior to its establishment on June 19, 1895, private agencies at Detroit and at Port Huron, Mich., had delivered mail, which was sent in their care, to boats passing these points. The service rendered by these agencies was extremely valuable to the interests served, but it was limited in its scope. It, however, suggested to the postoffice officials at Detroit, who were familiar with the amount of mail handled by the agency at Detroit and with the character of its service, the idea of the Government's taking the business in hand and providing a service commensurate with the magnitude of the interests to be served. Fortunately for the success of the project, the position of Superintendent of the Free Delivery System was filled, at the time the matter was being pressed upon the attention of the Postoffice Department, by its present incumbent, Mr. A W. Machen, formerly of Toledo, Ohio, who, when a resident of Toledo, was engaged in the vessel business and was besides an enthusiastic yachtsman, and as such known all over the lakes, consequently he was thoroughly conversant with the vast magnitude of the vessel interests of the Great Lakes, and also possessed the technical knowledge essential in making a close approximation of the probable cost of the service. This was shown by the fact that his estimate was within a few dollars of the actual cost the first season. That the Department was somewhat doubtful of the success of the service, even after it had decided to establish it, was evidenced by the fact that the steamboat that was first engaged was rented but for one month, and a slow and unmanageable craft she was, too. The discouragements at the start were many. The boat provided was not at all suited to the service. Pilots and carriers possesed of the necessary skill and daring could not be picked up every day. Applications for carrier came from all sorts of sailors and boatmen, men who had followed sailing all their lives, but one by one they failed, either because of a lack of skill or daring, or both, usually both. One big fellow who thought he was a regular sea-dog, after attempting a delivery came back to the dock wet to the skin, and, with a blanched face and chattering teeth, declared the Government hadn't money enough to induce him to make another attempt. One night an excitable pilot chased a Windsor street car to Sandwich, thinking from its lights that it was a vessel that had escaped his notice in passing the marine station, and in the exciting race he did miss a passing vessel. The Windsor car was not very fast, but it easily beat the captain's old tub. A day without an accident was a rare one. If it was not to the steamboat it was to the rowboat, or in the loss of oars or lines. The opposition of the private service was fierce and almost resulted in personal encounters between the men. Ignominious failure was predicted for the postal service by the opposition, and strange as it may seem, when viewed from their subsequent attitude, the vessel captains did not give it that hearty cooperation that they now do, probably because of their lack of faith in its feasibility; but the mail kept increasing and

the local postoffice officials were undismayed. They knew it was simply a question of obtaining trained men, and they were soon found in Wm. Yates, who, before entering the service, ran a bum boat; M. L. Randall, a marine reporter at Port Huron, and John Hammes, for several years in the life-saving service; and in Nelson Hilger and John Baker, pilots of the mail boat. Since the advent of these men into the service failures have been reduced almost to the vanishing point, and now the service commands the entire confidence and patronage of the captains of the great freighters that carry in a single cargo more wheat than the product of some states, as well as the patronage and confidence of the humblest sailors on the few antedeluvian craft that still sail the waters of the Great Lakes. Knowledge of this service has extended to every part of the world, as is shown by the receipt at the marine station of mail from every country on the globe. Its wonderful growth is best shown by the following comparative statement of the mail handled during the four seasons that the service has been in operation:

Seasons.	Mail Received at Marine P. O. From Boats & Main Office.	Mail Delivered to Boats.
1895	46,995 pieces	30,789 pieces
1896	175,850 "	131,361 "
1897	232,595 "	176,377 "
1898	277,356 "	217,782 "

The foregoing statement discloses the surprising fact that the increase for 1898 over 1897 is just about the same as the increase for 1897 over 1896. That there should have been such an increase in 1897 is not so remarkable, because in that year the service reached its present high state of efficiency; but that the same rate of growth should continue throughout 1898 is indeed surprising. The increase each year has far surpassed the most sanguine anticipations of the postoffice officials at Detroit. As an illustration of the extent of this service it might be stated that on April 12th, 1898, 57 boats passed in a single hour. On this occasion 336 pieces of mail were delivered to and 96 collected from these boats, which is quite an achievement when it is considered that boats were passing up and down at the same time and none were missed. On October 30th, 1,428 pieces of mail were delivered in 24 hours.

The marine station is equipped with every facility for serving the vessel interests. It is provided with calls of the different telegraph companies and large numbers of telegrams are sent through it, which are handled with great promptness. All kinds of mail, with the exception of registered mail, the delivery of which is impossible under the required regulations, is received and delivered. The station during the past season has been in charge of Clerks Chas. Jacklin and Edward J. Carmody. Detroit's postmaster, F. B. Dickerson, takes the liveliest interest in the marine service and has already brought to the attention of the Postoffice Department the need of a mail boat especially built for the service. He recommends a boat of a high rate of speed and strong enough to withstand the ice which sometimes in the late fall puts the boat now in use out of service. He would have the boat's cabin fitted up like a postoffice, with every facility for handling the large volume of mail which has outgrown present facilities, and he would have the boat so constructed and equipped that, with its high rate of speed, deliveries could be made directly from the mail boat to the biggest and fastest vessels. The service could then cope with all conditions and failures would be impossible. Judging from Postmaster Dickerson's past successes, it is safe to say that he will get the kind of a boat he wants.

WE have progressed a la marine since the universal freshet ycleped the deluge. Noah's ark is figured, according to bible records, as being only 540 feet in length—the hybrid production named the Great Eastern was 680 feet, while there was floated from a shipyard in Ireland a day or two ago a steel hull 704 feet in length. The new White Star Liner Oceanica is of 17,000 tons displacement, engines of 45,000 horse-power, triple screw propellers to send her along at a 27 mile gait per hour. Oh, yes! things maritime have progressed some. American engineers ought now to let fall a girder across to Asia and with a telescopic extension bridge projected to Europe the seas would but unite the nations they divide.

CHESAPEAKE—NEW SHIP BEING BUILT FOR SCHOOLING THE DEWEYS OF THE FUTURE.

(By Courtesey of the Chicago Tribune.)

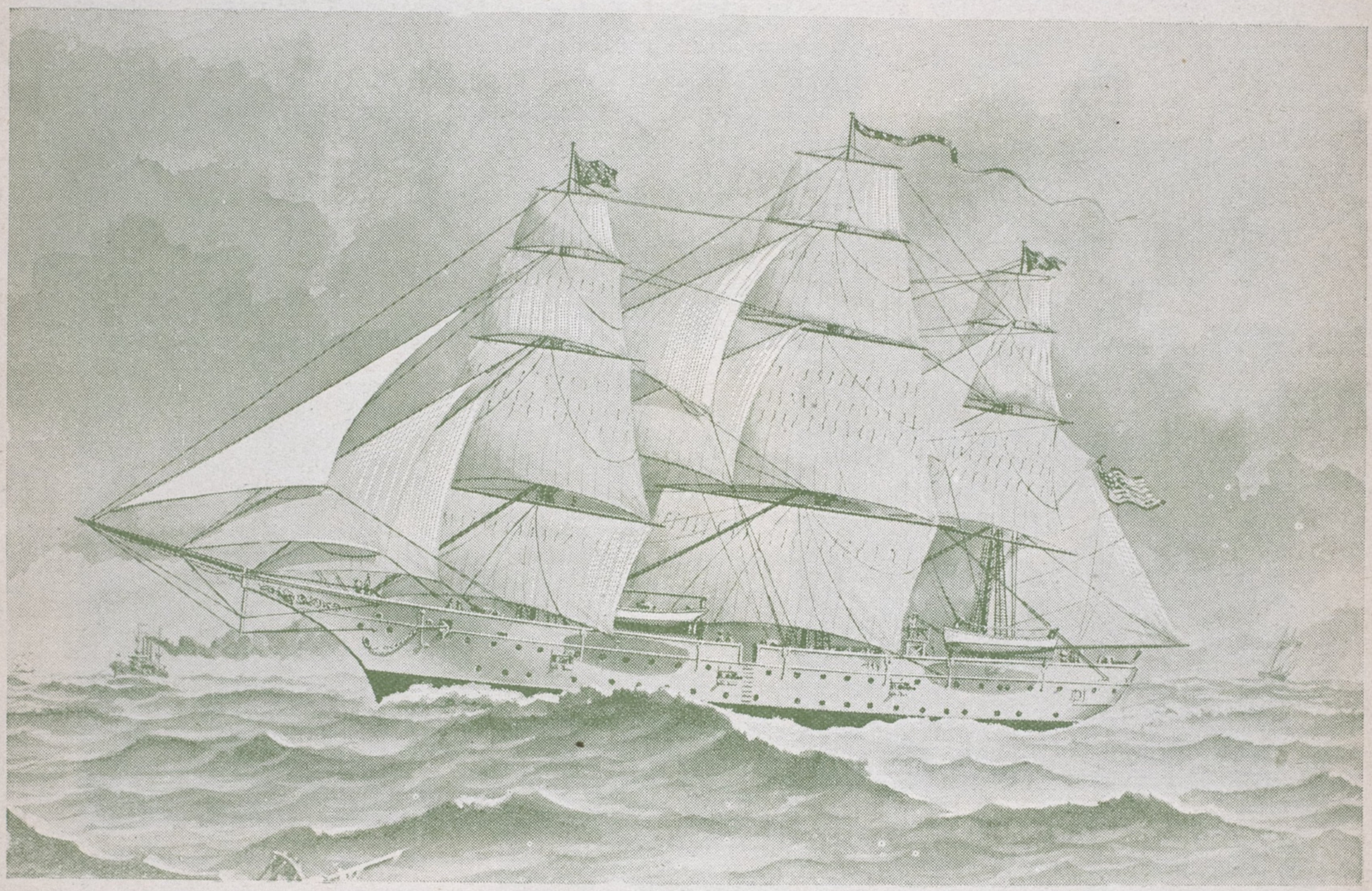
When the United States naval training ship Chesapeake, now building at Bath, Me., is finished, the embryo Deweys, Sampsons and Schleys of the United States Naval School, will have a practice ship, the like of which no other nation can boast. The Chesapeake will have a spread of 22,000 square feet of canvas, with the necessary accompaniment of spars and ropes to give elbow room to 180 young climbers anxious to learn the ropes, be nimble, and prepare their nerves for their future work. There will be two boilers in the ship for lighting and heating purposes, but for propulsion it will depend entirely upon the enormous spread of canvas. The main purpose is to make "tars" of her pupils, hence the masts and sails. Other training the cadets get elsewhere.

The Chesapeake was provided for in March, 1897, when Congress appropriated $125,000 for the ship, later doubling the amount. The keel was laid on August 2 last. The hull is of steel with yellow pine sheathing and coppered. Here are some of the specifications: Length of hull, 224 feet; from jib to spanker boom, 275 feet; extreme breadth, 37 feet; draft, 16 feet; depth, 27 feet; displacement, 1,174 tons; height from keel to main truck, 158 feet.

Plans for the Chesapeake were made by the Naval Bureau of Construction and gone over by the superintendent of Annapolis Academy, who saw to it that everything possible to make the training facilities complete was provided for.

The Chesapeake will have a main battery of six four-inch breech-loading rifles, one gun deck and a second battery of three six-pounders and two one-pounder rapid fire guns on the spar deck.

A captain, two wardroom officers, two warrant officers, 180 cadets and 90 sailors will man the school ship when she will take her first cruise.



U. S. AUXILIARY TRAINING SHIP CHESAPEAKE.

"I would like to interest you in our compressed air motor." Compressed nothing! I wouldn't touch it with a 10-foot pole. I'm an expansionist."—Chicago Tribune.

THE U. S. LIFE-SAVING SERVICE.

The following is an abstract of the current report of the General Superintendent of the Life-Saving Service:

At the close of the last fiscal year the system embraced 264 stations—192 being on the Atlantic, 56 on the lakes, 15 on the Pacific, and one at the falls of the Ohio at Louisville, Ky.

The number of disasters to documented vessels within the field of operations of the service during the year was 402. There were on board these vessels 3,113 persons, of whom twelve were lost. The estimated value of the vessels and cargoes involved was $7,168,390. Of this amount $6,410,530 was saved and $757,860 lost. Six hundred and sixty-three shipwrecked persons received succor at the stations. The number of vessels totally lost was 59.

In addition to the foregoing, there were during the year 365 casualties to small craft, on board of which there were 874 persons, of whom ten were lost; value of the property involved, $199,705, of which $177,826 was saved. Fifty-six other persons were rescued who had fallen from wharves, piers, etc., the most of whom would have perished but for the aid of the life-saving crews.

The crews saved, and assisted to save, during the year 471 vessels, valued, with their cargoes, at $2,868,655, and rendered assistance of minor importance to 324 other vessels in distress, besides warning from danger by the signals of patrolmen 226 vessels.

The number of lives and the amount of property saved through these warnings cannot be determined, but it is certain that numerous disasters were thereby averted.

The investigations made, as required by law, into the details of all shipwrecks involving loss of life, and into the conduct of the life-saving crews at these wrecks, show that no life was lost through the lack of faithful and intelligent efforts on the part of the life-saving men, who on all occasions proved themselves equal to the requirements of duty.

The number of disasters within the scope of the service was much larger than that of any previous year. The loss of life was only twenty-two, against fifty-three in the preceding year, when the number of disasters were much smaller, and was less in proportion to the number of wrecks than ever heretofore.

The cost of the maintenance of the service during the year was $1,497,676.35, which sum, however, included $56,952 expended during June and July from a special appropriation of $70,000 for the maintenance of 139 stations as coast signal stations for war purposes on the Atlantic and Gulf coasts.

The following is a general summary of the statistics of the service from the introduction of the present system in 1871 to the close of the fiscal year ending June 30, 1898:

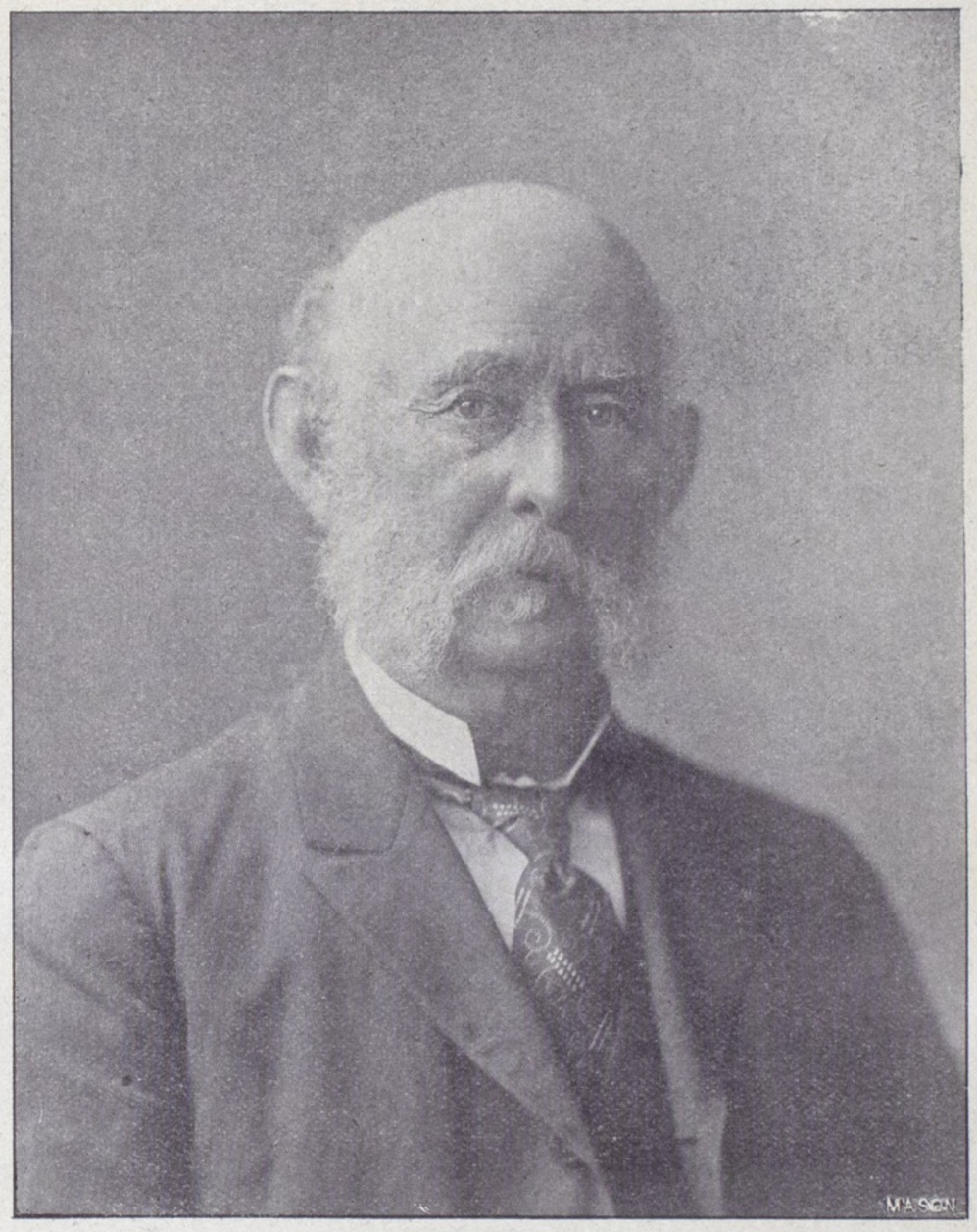
Total number of disasters	10,448
Total value of vessels	$113,246,245
Total value of cargoes	47,839,149
Total value of property involved	161,185,424
Total value of property saved	125,630,262
Total value of property lost	35,555,162
Total number of persons involved	81,245
Total number of lives lost	845
Total number of persons succored	13,876

Six new stations were completed during the year, located respectively at Damariscove Island, Me.; Salisbury Beach, Mass.; Old Harbor, near Chatham Beach, Mass.; Isle of Wight, north of Ocean City, Md.; Lakeview Beach, near Port Huron, Mich., and Paterson's Point, Gray's Harbor, Washington. With the exception of that at Paterson's Point, all have been equipped and manned, and the latter will be shortly put in commission.

Contracts were also made for the construction of a station at Great Bore's Head, in the town of New Hampshire, coast of New Hampshire, and one at Sandy Point, the north end of Block Island, R. I., both of which are now nearly completed.

The present demands of the service and the unfitness for further occupancy by reason of age of the stations at Nantoloking Island Beach, Ship Bottom, Little Egg, Brigantine, Peck's Beach, Corson's Inlet and Holly Beach, N. J., have made new buildings necessary at those points, and proper structures are now in process of erection. A new station is also being constructed in place of the antiquated and unsuitable one on Hog Island (Broadwater), coast of Virginia.

S. I. KIMBALL, GENERAL SUPERINTENDENT U. S. LIFE-SAVING SERVICE.



JAMES A. DUMONT, U. S. SUPERVISING INSPECTOR-GENERAL OF STEAMBOATS.

FIVE suits in admiralty have been commenced in the United States District Court at Chicago, against La Compagne Generale Transatlantique, owners of the steamer La Bourgogne. Damages to the amount of $50,000 are asked in each case. The suits are brought on the complaint that the officers of the French liner did not observe the rules common to all steam vessels on the high seas, and that adequate protection was not afforded the passengers.

THE SUPERVISING INSPECTOR-GENERAL OF STEAMBOATS.

Supervising Inspector-General of Steamboats James A. Dumont has served under six Presidents and eleven Secretaries of the Treasury. His long service and high standing as a Government officer has been due to the economy and efficiency with which he has managed the affairs of the bureau. The heads of the administration have recognized these facts, and in the case of the supervising inspector, as in many other branches of the federal service, notably in the treasury, war and navy departments, experienced officers are not changed on account of a change in the head of the administration. It is a matter of small concern to the head of the treasury department what the politics of James A. Dumont may be, but it is important to the secretary and the people of the country to know that the officer charged with the execution of important laws of congress passed for placing safeguards around the steamboat service of the country and the vast throngs of passengers carried in that service, to know that the inspector-general is a competent and experienced officer, thoroughly energetic in the discharge of his duties. James A. Dumont is a New Yorker and commenced his career as a sailor. Although 71 years old, this veteran in navigation and pilotage is still active and alive to the importance of the great service of which he is the head. Mr. Dumont is a man of genial nature and engaging personality. He is over six feet tall, and as erect as he was a quarter of a century ago when he first took charge of the bureau.

There are thousands of men engaged in building and construction as well as with the navigation affairs on the lakes and rivers of the northwest who are thoroughly familiar with the great work that is performed by government authority in promoting the interests of navigation, and the successful carrying out of the laws of Congress relating to steamboat inspection. To all these persons the name of Dumont is well known and it is quite problematical, if his successor in office, as in the course of time such must naturally occur, will execute the administration of the steamboat inspection laws as smoothly and generally agreeable as the present incumbent has been found capable of doing.

"ISN'T my new dress becoming to me?" asked the delighted wife. "Yes," replied the head of the establishment, "and I suppose the bill will soon be coming to me.

NAUTICAL PARLANCE.

In the delightful home of a well-known officer of the United States navy, now stationed at Washington, the story is told that the daily household and table talk has been reduced to the purest and most unvarnished man-o'-warese. The naval officer is a deep-water and heavy-weather man of so many years' standing that his talk is naturally salty, and all of the members of his family—wife, grown daughters and lads—have unconsciously picked up the dialect from him .

"How I dread the task of 'breaking out' my fall and winter clothing again!" said one of the young women of the family to a young woman caller the other day, and it took her quite five minutes to explain that in the navy 'breaking out' means unpacking, removing, overhauling gear from the storeroom.

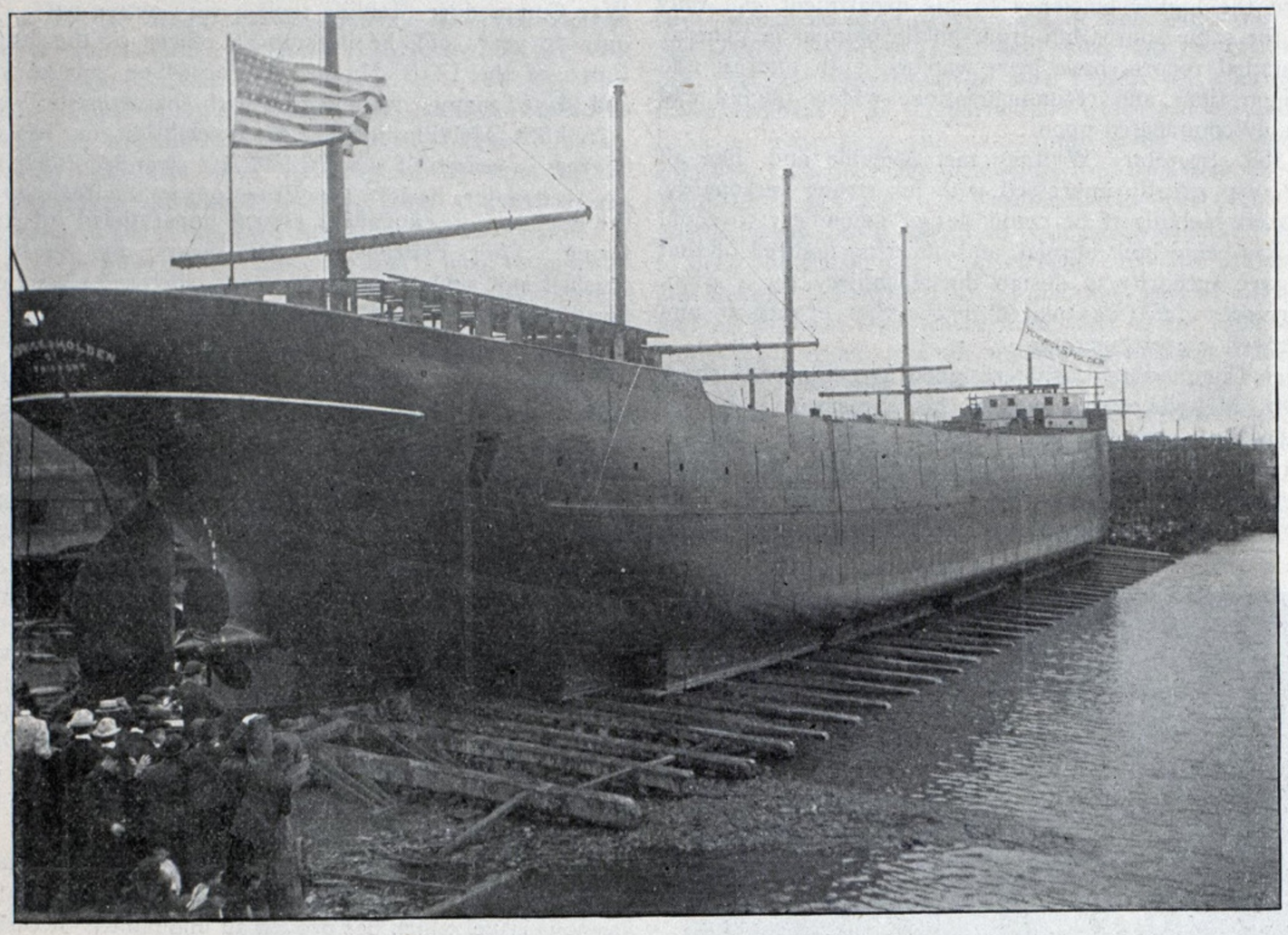
When one of the naval officer's young sons wants the boy from the next house to make his appearance out in front for playing purposes, he gives a shrill whistle, like unto the blast of a bo's'n's pipe, and then, in a voice pitched in as deep a key as his treble is capable of handling, he sings out, "All ha-a-ands to quarters!" The same boy has been often reprimanded, where there is company in the house for evening tea, for walking through the hall, when the meal is about to be served and singing out, "All hands lay aft for grog!" When, as occasionally happens, the naval officer and his wife are engaged in having a trifling tiff downstairs over some minor matter or other, one of the young women of the house has been known to walk mischievously through the upper hall, singing out, "All hands bury the dead."

"Stand by!" is the ordinary phrase in this naval officer's home when the utterer of that ship command wants to gain attention for some remark. When one of the young women of the house is ready to start down town on a shopping expedition and wants to know if there are any commissions that she can execute for her mother or sisters, she takes up her station in the front hall and sings out:

"All o' youse men that's got mail for the United States wants to know that the mail orderly is about to go over the side with the mail!" When the mother and daughters are about starting out for an afternoon drive, the boy aforesaid generally pipes them away by singing out, bos'n'smatewise: "All hands abandon ship!" When a couple of his sisters get at momentary loggerheads over some little matter or other the same boy yells: "Collision quarters!" and bolts for it. There are no such words as "front' 'and "back" in this house. It is "for'ard" and "aft." "Willie, run up for'ard and see if I left my gloves there," one of the younger women will say to her little brother. "I saw 'em aft on the mizzenrail awhile ago," the boy will reply, meaning that he saw them on one of the windowsills in the back parlor. When one of the young women wishes to hold up her father for a bit of shopping money, she puts the proposition to him something like this: "Papa, suppose you play paymaster, and we lay aft to the pay office and you serve out monthly money. I need some small stores."

When the younger son of the house has been derelict and his mother wishes to threaten him with an interview with his father, she says. "Willie, I've a great mind to take you up to the mast." When the boy is kept in the house for misconduct, he tells the boy next door from the window of his room that he's "doing a trick in the brig." When his father wants his carriage ordered for a ride somewhere on business, the lad whistles the proper ship's call and gives the coachman the word. "Crew of the captain's gig lay aft." When the boy himself is bound for morning school, he signalizes his departure by the ship's words, "Up anchor."

There is no such thing as a "floor" in the naval officer's house. All of the floors are "decks." The basement is the berth deck, the main floor is the spar deck, and so on. Nothing is washed, it is "swabbed." A cuspidor is a "spitkit." The water cooler is the "scuttlebutt." And so on. A retired man-o'-war's man who would take a job as servant in this naval officer's establishment would never become lonesome.



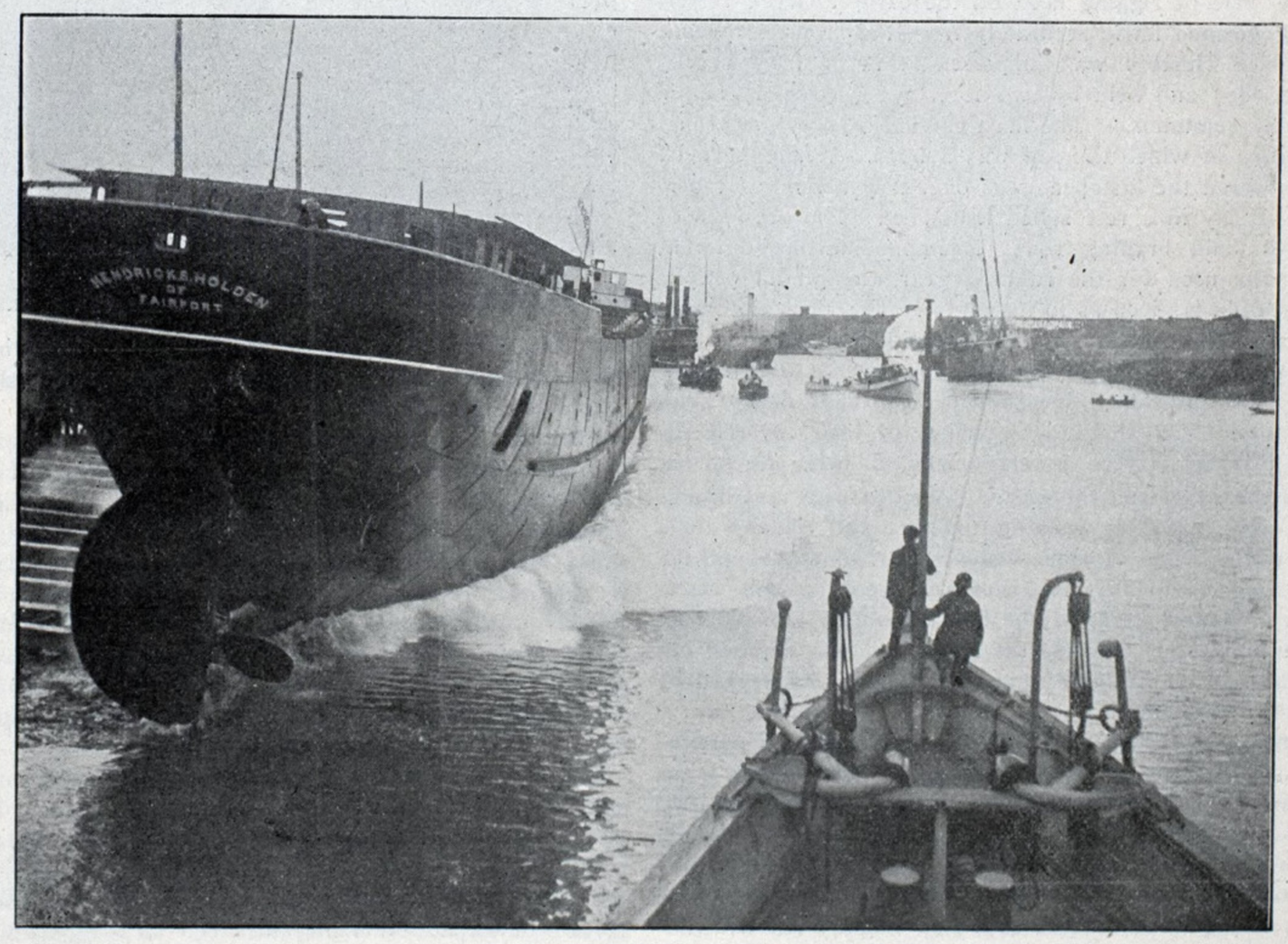
A TYPICAL LAKE LAUNCH "ON THE WAYS."

THE CUNNING OF THE SEA GULL.

An example of the cunning of gulls, says an exchange, was observed at Tacoma, Wash., when several alighted on a bunch of logs that had been in tbe water for a long time, with the submerged sides thick with barnacles. One was a big gray fellow who seemed to be the captain. He walked to a particular log, stood on one side of it close to the water, and then uttered peculiar cries. The other gulls came and perched on the same side of the log, which under their combined weight rolled over a few inches. The gulls, step by step kept the log rolling until the barnacles showed above the water. The birds picked eagerly at this food and the log was not abandoned until every barnacle had been picked.

Now that the war is over the Corps of Engineers, U. S. A., can begin the important study of the Great Lakes, for which Congress made an appropriation in 1897. It is proposed to study the flow of one lake to another at different stages of water and determine its law; and to discover the causes of the fluctuations that take place in the lake levels, and ascertain whether artificial means for maintaining them are advisable; and to note the effect of artificial works like the Chicago drainage canal and others. This is an important work and will take years for its completion, but Gen. John M. Wilson, Chief of Engineers, U. S. A., justly says the results may reach far beyond the special questions with which the investigations are concerned and supply a vast fund of information of scientific and practical interest. The survey of the lakes has produced a complete and accurate series of charts, the hydrography and much of the shore outline being marked with a degree of perfection that is not excelled by any other set of charts in the world.

THE best runs for Atlantic liners in 1898 were: Kaiser Wilhelm der Grosse, westward, 22.29 knots average speed; Lucania, 21.99; Campania, 20.96; Etruria 19.13; Umbria, 18.59; Majestic, 19.37; Teutonic, 19.60; Germanic, 16.77; St. Louis, 19.73; St. Paul, 19.55; New York, 18.97; Paris-18.82. Eastward the best runs were: Kaiser Wilhelm der Grosse, 22.51; Lucania, 21.30; Campania,, 21.21; Etruria, 19.74; Umbria, 18.88; Majestic, 19.65; Teutonic, 19.90; Germanic, 16.61; St. Louis, 19.87; St. Paul, 19.26; New York, 18.1; Paris, 18.64. The fact that the Etruria and Umbria are fourteen years old and have single screws, while their younger rivals exceed them greatly in size and have twin screws, shows how much it requires to add a couple of knots to speed. The time of two of the Cunards varies by 27 minutes from their best time in 1897, a proof of the regularity with which the voyage of 3,000 miles is made.



A TYPICAL LAKE LAUNCH "LEAVING THE WAYS."

YACHTS OF ANTIQUITY.

Most historical records dealing with the sport of yachting commences with the well known quotations in Evelyn and Pepys. Reference to Thucydides and Polybius, however, proves beyond doubt that small craft built for pleasure purposes only were common enough with the wealthy Hellenes as far back as five centuries ago.

The early decades of the century are but dimly lit up, while the previous centuries are enveloped in almost total darkness. Here and there we come across occasional data in old prints and books, but a connected history does not exist, and plenty of scope is left for the imagination.

Suetonius is our authority for the statement that the luxurious Romans well knew and appreciated the pleasure to be derived from roaming about the seas. This writer describes at some length the Emperor Caligula's yachts. Along the upper decks there were built what would correspond with the modern deck-houses, which were fitted most sumptuously with paintings, statues, and mosaics in the principal apartments, while the bathrooms contained baths of bronze and marble, and even a library of books was carried on board. Covered walks ran alongside these deckhouses, with fruit trees and rows of vines planted in flower pots, which leads one to surmise that the Romans were fair-weather sailors rather than daring navigators of choppy seas.

Of the earlier Grecian yachts, however, our knowledge is more scanty. All existing evidence from written sources, supplemented in a few isolated cases by evidence from material sources, still leaves ample room for deductions and conjectures.

The sails used on Grecian ships were sometimes made of linen, but more often of the fibre of the papyrus and various other rushes. Thus even the American invention of ramie cloth would appear to have been forestalled. The edges of the Grecian sails were bound with hide, a system, which, if adopted nowadays, though perhaps not conducive to speed, would insure a vessel sailing with sails of the same dimensions as given in the Yacht Racing Association certificate. The skins of the hyena and the seal were in particular request, since sailors considered these sovereign means for keeping off lightning. Topsails, as a part of the ordinary rig, apparently came into use about 50 A. D. The ancient mariner who knew that he increased the ship's speed by carrying sail as high as possible, attained his object by hoisting up the yard, but seemingly did not understand the cause of this phenomenon.

The style of rigging used on the earliest Greek vessels can be gleaned fairly accurately from the Homeric poems. The mast (histos) was supported at its foot by a prop (histopede) and held by two forestays (protonol) and a backstay (epitonos.) The mast carried a yard, (epikron,) by means of which the sail was hoisted. When the mast was lowered the histopede was obviously a kind of tabernacle—it lay in a rest styled histodoke. The presence of halyards and brailing roues is implied, while different terms are used for the running gear, though no definite information is given as to its nature. The mast and yards were generally made of fir and occasionally of pine.

The outer planking of the hull was covered with a mixture of tar and wax, some paint being usually melted with the latter. Sometimes a sheathing of lead covered the outer planking, layers of tarred sailcloth being placed between the wood and the metal. Wooden pegs and bronze nails were used for holding together the timbers of a ship, while girdles of cable, fastened horizontally round the ship, were frequently used to strengthen the hull externally. At the bottom of the hold gravel or stone ballast was usually carried, while the bilgewater was emptied out by means of an Archimedian screw, which was worked by a kind of treadmill .

Students of Virgil's "Aeneid" will remember a particularly spirited account of a race between four Trojan men-of-war off the coast of Sicily. But the earliest recorded yacht race, in the modern sense of the word, was one in which Charles II. took part. The Merry Monarch had a pleasure-boat built for him after a Dutch model (the word yacht or jaght seems to be of Dutch origin,) but with improvements, and the little vessel earned the approbation of Samuel Pepys, the diarist, who, as secretary to the admiralty, may be supposed to have been a keen judge, and as "one of the finest things that every I saw for neatness and room."

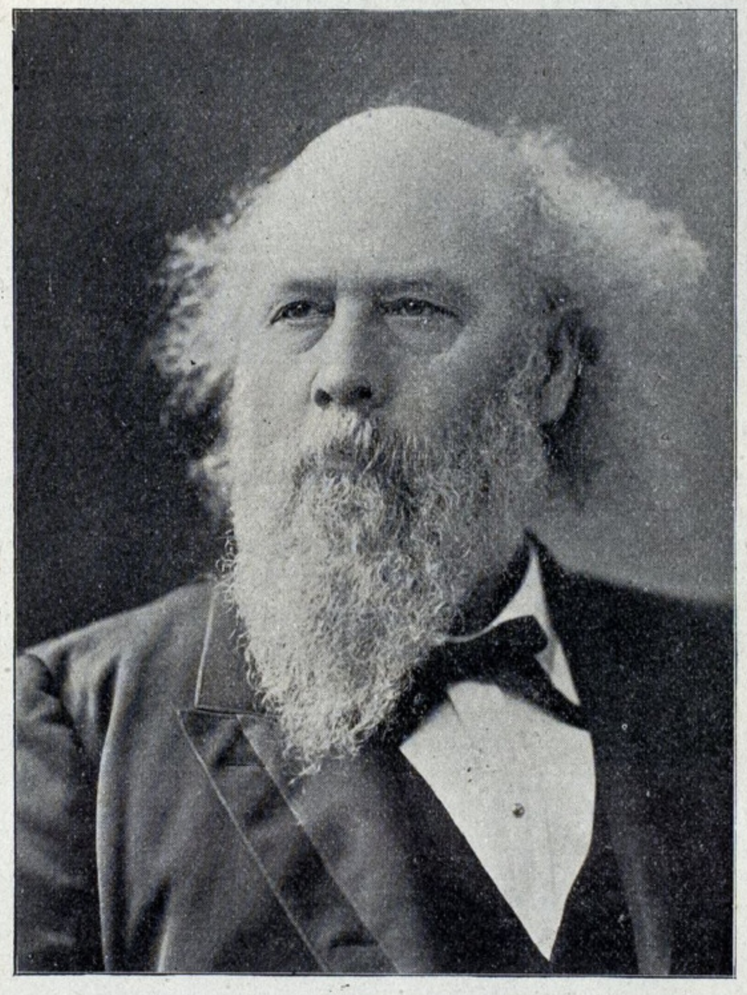
On October 1, 1661, the king sailed her against his brother, the Duke of York's yacht, for 100 guineas, from Greenwich to Gravesend and back, and won his wager.

COMMODORE MELVILLE, CHIEF ENGINEER, U. S. N.

Commodore Melville has been engineer-in-chief of the United States Navy since August 9th, 1887. He has been upheld by the technical press of the country, particularly in the last two or three years, in his efforts to secure a higher degree of recognition for the engineers in the navy, and has repeatedly been encouraged in his arduous labors looking toward the higher efficiency of his department, not only from the same source but from public opinion in general. His annual reports have been watched with interest and his suggestions and recommendations widely quoted and favorably commented upon.

In 1887 Secretary Whitney met Melville and, like all others, was greatly impressed with his strong personality. He asked Melville if he could design machinery to equal what was being built abroad, and on being assured of that fact, gave authority to design the machinery for a 4,100-ton cruiser. This was placed in the San Francisco, and has proved a great success.

When Commodore Loring resigned as engineer-in-chief, in 1887, Melville was appointed his successor, was confirmed when Congress met, in January, 1888, and has twice been reappointed, so that he is now serving his third term, an unprecedented record. When he took office the only modern vessels in commission were the Atlanta, Boston



COMMODORE MELVILLE, CHIEF ENGINEER, U. S. N.

and Dolphin, so that practically the entire upbuilding of the modern fleet, as far as machinery is concerned, has been done under his supervision.

The work which he has accomplished during his term has been immense, and some idea of this is obtained when it is stated that he has been responsible for the design of machinery for 120 ships and 700,000 horse-power. This alone, however, merely gives the magnitude of the work. Its quality is even more important. Here the items that count are boldness and progressiveness, tempered by sound mechanical judgment, and these qualities Melville has displayed in a remarkable degree. It is very easy to gain for a day a reputation for progress, but in machinery time settles the wisdom of the course pursued.

The recent almost marvelous accomplishments of our battleships, made possible primarily by the degree of efficiency in the engineering corps already attained, attest the wise judgment of this agitation and Commodore Melville's recommendations, which, however, have received only a portion of the attention they merited. It is highly fitting, after the satisfactory record during the past season of the work of his department, that Commodore Melville should be elected President of that eminent body representing the highest strength of the engineering profession, the American Society of Mechanical Engineers, at its recent meeting in New York City.

Commodore Melville was born in New York, January 10, 1841, of Scotch parents. It is an interesting fact that one of his ancestors, Sir James Melville, was First Lord of the Admiralty when the expedition of Parry to Baffin's Bay occurred, and his name has been given to some Arctic lands and waters. His early training was received in the public schools of New York City, and later, he passed through the polytechnic school of Brooklyn. The foundation of his great practical skill was laid in the engineering works of James Binns of East Brooklyn. During the Civil War Commodore Melville took a very active part. When only 20 years old, he became an officer of the Engineer Corps of the U. S. Navy. He served on several vessels and played many a leading part with characteristic bravery.

In 1873 Melville joined the expedition on board the Tigress in search of the crushed and stranded Polaris, and six years later, he left San Francisco in the Jeannette, for the north on an expedition almost unparalleled for its suffering. After drifting for two years, the vessel was crushed and sunk, leaving the crew shelterless on the ice-floe in mid-ocean. In a most pitiable condition the crew completed a retreat of over 2,200 miles in about 100 days. The daring and endurance exhibited by Melville in his search for De Long and his men, forms one of the most noble examples of devotion and self-sacrifice that the north has ever known. While holding the position of engineer-in-chief, Commodore Melville has supervised the designs of nearly all of the war vessels now composing our fleet. It is due to his judgment and untiring energy that triple screws are used for vessels of great displacement. He is a strenuous advocate of large boiler power, ample bearing surfaces, etc., notwithstanding the pressure to reduce all weights to a minimum in warship design. To this unchanging course, combined with good workmanship and able handling, are due the magnificent run of the Oregon in her recent voyage around Cape Horn. Without doubt Commodore Melville is the leading advocate of high speed among the warship designers of the world.

Another example of his characteristic energy and resourceful ability, is the repair ship Vulcan, described in a previous issue, which has proved an unqualified success. In the course of a long and distinguished career, he has been the recipient of many honors and the nation is fortunate indeed, in the stress of sudden war, to have been able to command the services of such a man as Commodore Melville.

Commodore Melville has made a reputation as a designer of engines and the mechanical equipment of warships that will live as long as there are navies.

The commodore is also an officer of the Commandery in Chief of the Loyal Legion, a member of the Grand Army of the Republic, and an active or honorary member of so many scientific societies that the list would require too much space to print at this time,

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—OHIO.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., January 18th, 1899.

ASHTABULA RANGE LIGHT STATION.

Notice is hereby given that, on the opening of navigation, 1899, one fixed lens-lantern light will be shown from the rear beacon of this range, near the shore end of the westerly pier at the entrance of Ashtabula Harbor, in place of the two lights (one white vertically above one red) heretofore exhibited.

The focal plane of the light will be 68 feet above mean lake level.

BLACK RIVER RANGE LIGHT STATION.

Notice is hereby given that, on the opening of navigation, 1899, one fixed red lens-lantern light will be shown from the rear beacon of this range, on the shore end of the westerly pier at the entrance to Black River Harbor, in place of the three lights (red, white, and red, arranged vertically) heretofore shown.

The focal plane of the light will be 65¼ feet above mean lake level.

BRADDOCK POINT LIGHT STATION.

Notice is hereby given that, on the opening of navigation, 1899, the 3½-order fixed white light at this station, on the southerly shore of Lake Ontario, about 2¾ miles west-northwesterly from Braddock Point, will be changed so that it will be visible from all points of approach from the lake.

By order of the Light-House Board,

FRANCIS J. HIGGINSON,
Commodore U. S. Navy, Chairman.

THE MORBID ANATOMY OF IRON AND STEEL SHIPS.*

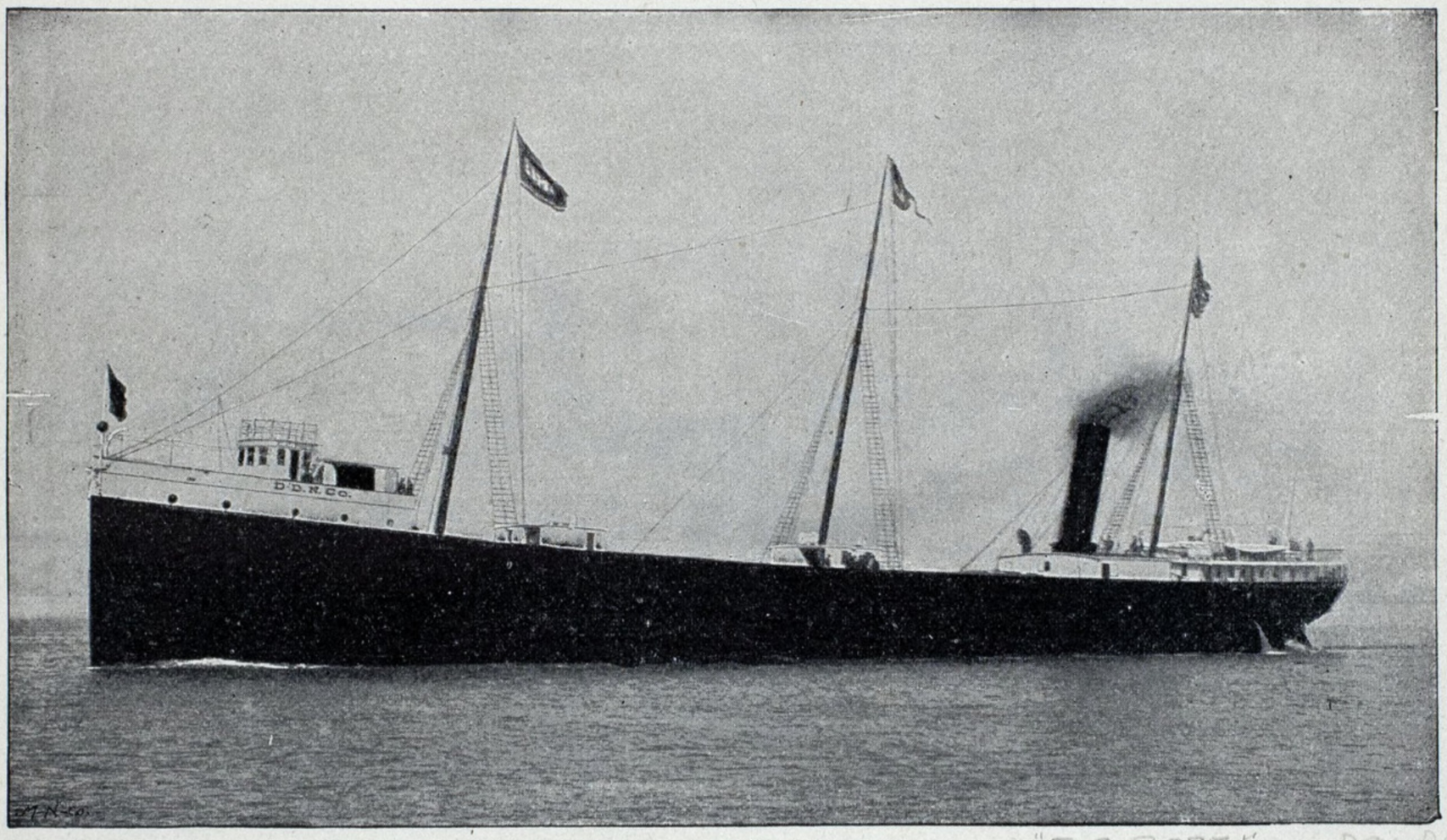
By Mr. S. J. P. Thearle, Principal Surveyor to Llloyd's Register of Shipping, at Newcastle-on-Tyne.

Very recently you have had a lecture delivered to you in this room upon the subject of "Failures." I was not present to hear that lecture, nor am I aware which were the particular failures about which you were spoken to, but I do know that the art of ship construction has been evolved through as substantial a series of failures as any art with which I am acquainted. Not, however, as a rule, by absolute failures, but rather by many partial ones in regard to the particular qualities which have been sought to be attained. By "trial and error" has ship construction, for the most part, been developed, and through the experience gained from failures has each sure advance been made. It is about ships built of steel and iron that I wish to speak to you to-night, and about what is to be learnt from an examination of the diseases to which they are found to be liable. And here let me remark that the title chosen for this paper is a phrase which originated, I believe, with the late William Denny, and it has been adopted by me because it so aptly describes the purport of what I have to say.

The inspection of iron and steel vessels when in course of construction, has undoubtedly a highly educative value in the programme of your studies, but a persistent examination of existing vessels as they come under repair in dry dock or on slipways would be productive of even still more instructive results. In the one case you see the applied results of accumulated experience, but in the other you have presented to you the data itself upon which further evolutionary changes will be based. When examining a vessel about to be repaired you would observe symptoms of weakness being displayed here, indications of undulv rapid decay there, and in many shapes and forms you would be assured that the best known to the builder oi that ship was yet short of being the best attainable. Few indeed, are the works of man's hands in which possibilities of improvement are not speedily manifested when they are applied to the purpose for which they are designed. Although the art of shipbuilding in iron is now about fifty years of age, and although mild steel has been in very general use for about fifteen years of that period, yet we are still discovering faults in our newest vessels and still making improvements in their construction. This is partly due to the fact that both steam and sailing vessels are every year being built of larger dimensions than we have hitherto been accustomed to, and with the increase in size there is an attendant augmentation in the stresses to which they are subjected. It is also partly due to the opportunity which the greater lapse of time affords us for observing the relative durabilities of iron and steel at different positions in the vessels' hulls. Time is, indeed, always an important factor in determining the extent and accuracy of our knowledge regarding natural phenomena. "He who lives longest sees most."

So long as vessels were being built of wood, every succeeding decade witnessed great advances in their construction, both in regard to the questions of structural strength and material durability. Never before had wooden ships been built so strongly, and never before were they found to be so free from early decay as at the time when they were displaced by vessels of iron. And so we may reasonably expect that the construction of steel vessels will continue to make advances in all the particulars which render them less liable to wear, tear, and decay until some other material comes to take the place of steel as iron took that of wood. Whether or not such a replacement will ever occur I am unable to say, but it would be both unscientific and unwise to deny the possibility. Considering, then, the sailing ship and steamer built wholly or for the most part of mild steel, and of wrought iron where mild steel is not used, let us study for a short time the morbid appearances which are presented when they come under the ship repairer's scalpel and dissecting knife. At the same time let us endeavor to find out to what causes these appearances may be properly attributed and how they may be remedied or cured.

In so doing I propose to classify iron and steel ship diseases under two general heads, namely:—First, diseases of constructional weakness; secondly, diseases of material decay.



A TYPICAL LAKE STEEL CARGO STEAMER. "E.C. POPE" DRY DOCK NAV. CO.

First, then consider the diseases of constructional weakness. A ship is a floating structure for the safe conveyance of cargoes, and must be primarily studied as such. But, in addition, she has to be grounded upon blocks in a dry dock from time to time, and hence must not only be strong enough as a floating structure when loaded, but also strong enough for enduring shoring upon blocks in a dry dock when unloaded. Moreover, she must not only be able to endure the structural stresses due to rolling and heaving movements when in a seaway, but also the local stresses due to the blows and buffetings of individual waves and masses of water. Hence constructional weakness includes both structural and local weaknesses. Instances of each of these are occasionally seen in surveying vessels coming under repair.

To range completely over the whole gamut of observation would be manifestly impossible in the limits of time at our disposal this evening. We must therefore be content with the results of but a few anatomical studies grouped under the heading I have indicated.

The substitution of steel for iron in shipbuilding was attended with other results than the mere reduction of weight in the materials necessary for obtaining the requisite structural strength. The chief object sought for in using the stronger metal was doubtless a diminished weight of hull and a corresponding increase in the cargo-carrying capacity of the ship, and for this advantage in freight-earning a heavy extra price was paid at first for the steel as compared with that paid for iron. As, of course, you well know, that difference in price has wholly disappeared, and mild steel is now as cheap as wrought iron. But, as I have said, something more was gained than mere freight-earning by the change. The steel vessel is safer than one built of iron. Stresses which break iron plates only bend steel plates; stresses which break iron ships only distort those of steel. And consequently steel ships remain afloat and carry passengers and cargo into port under conditions which would cause the total loss of ships built of iron. At first, this quality seemed to make steel vessels unpopular with underwriters, and this was chiefly due to a singular instance in which a disaster to a steel vessel proved to be more costly to her underwriters than would have been the case had she been of iron. A new steel sailing ship was being towed in ballast to her loading port, and being insufficiently ballasted, she capsized and sank in shallow water near the shore. Steps were at once taken to raise her by passing chain slings under her keel and attaching them at low water to pontoons, which as the tide rose lifted the vessel off the bottom and enabled her to be towed into still shallower water. Now, through some carelessness in carrying out this simple process, the stresses upon the chains were not evenly distributed, and had the vessel been built of iron the chains would have torn some of her iron plating. Being, however, of steel, the plates yielded and bent, while at the same time the whole structure of the vessel became twisted, so that she lost her symmetry of form and had no longer both sides alike. Had she been built of iron the repairs would have been comparatively costless, as the renewal of a few broken plates would have restored her to her former condition. But as the case stood, the owners refused to take the ship from the underwriters until they had made her once more of a symmetrical form. To do this was practicallv impossible, and so the owners got a new ship and the underwriters recouped themselves so far as possible by selling the first one to a purchaser who was content to sail a ship not perfectly symmetrical in form which he was able to buy cheaply. The accident gave steel ship risks a bad name for a short time, but it very soon became evident to underwriters that "one swallow does not make a summer," and that with steel vessels they had to pay for small damages which would often have been total losses if the vessels had been built of iron. Over and above this consideration is the greater one—namely, that human life is saved which would otherwise have been sacrificed. Both as regards structural and local forms of weakness the morbid conditions observable in steel vessels are fewer and less serious than in those built of iron.

In estimating the intensity of stress on the upper works of a vessel it has been very usual to treat the midship section as the cross section of a loaded beam. You are no doubt familiar with the method whereby the equivalent girder is determined and the maximum bending moment

*A lecture delivered to the Glasgow University Engineering Society.

and shearing stress calculated under extreme conditions, such as when supported on the crest or in the hollow of a wave of the vessel's length. Now, in this interesting and in many respects valuable calculation, you will remember that all iron and steel decks, shell plating, inner bottom, etc., are as it were condensed or squeezed so as to form the horizontal and vertical members of an equivalent girder, and the intensity of stress, either extensive or compressive, is determined upon the assumption that the horizontally and vertically-arranged materials in the vessel's hull behave under extension and compression just as the parts of this so-called equivalent girder would. Now, I have no desire to say one word in disparagement of such calculations, which are useful in affording comparative values. But, as an absolute indication of what takes place in the upper works of a vessel steaming among long waves, they are misleading, and the ships themselves show this to be the case.

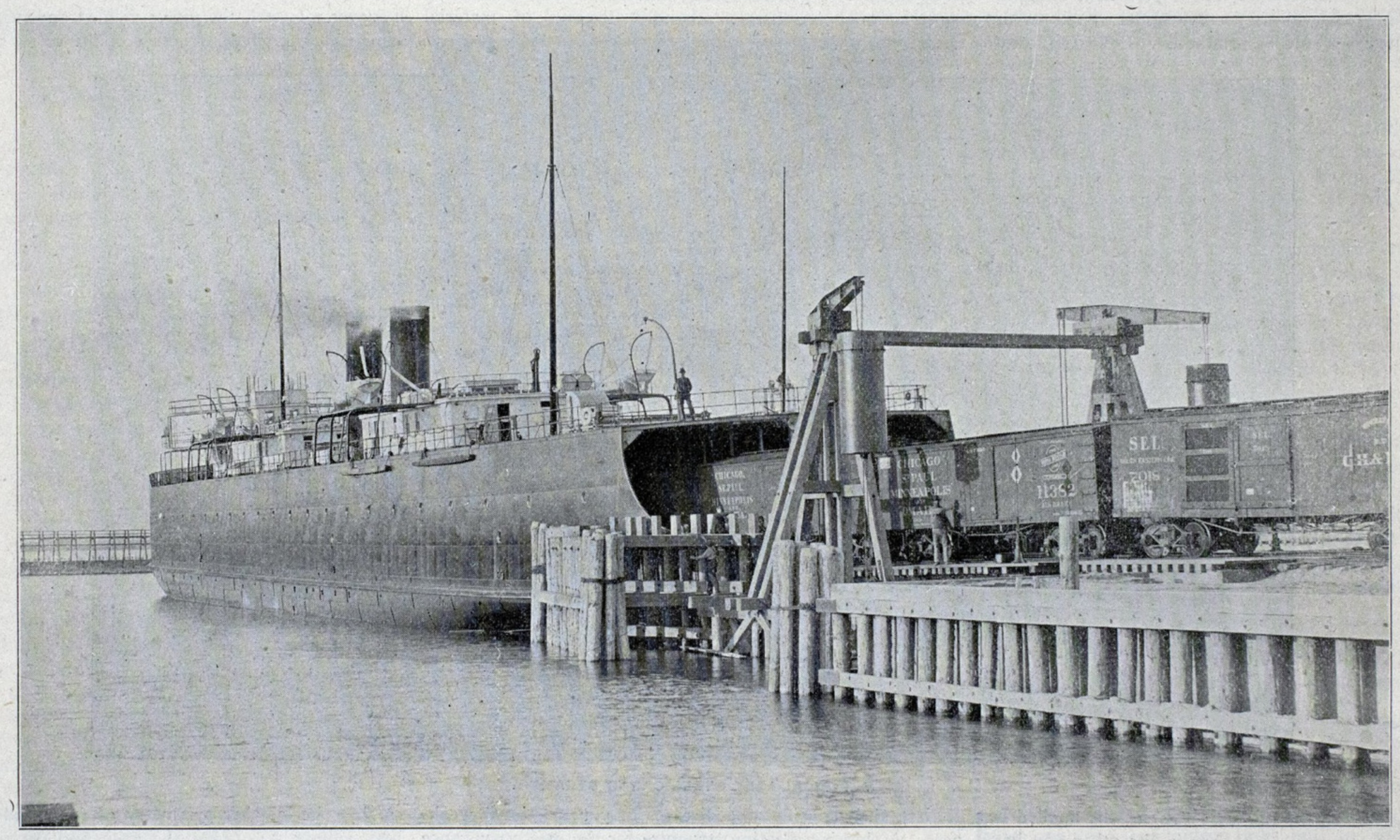
Deck plating is sometimes torn from hatchway to gunwale without the sheer strake showing any distress, and side plating is torn or the butts of same started without the adjacent deck plating appearing to be concerned in the trouble. A moment's consideration shows why this should be the case. How big a gap do you think would be torn in the upper edge of a sheer strake before the adjacent deck plating would be bent sufficiently to be in tension? Remember the sheer in the deck when thinking this matter out for yourselves. And then, again, how much cross raking would a deck endure before receiving succor from the shell plating? These are the questions which ships answer when under the ship doctor's hands. Their every failure and defect indicates that the primary function of an iron or steel deck is to resist racking stresses, while the duty of the shell plating is to deal primarily with vertical bending moments. Only in their association one with the other as mutual stiffeners and supports does either take a share in doing the essential work of the other. The stringer plates stiffens the sheer strake and nelps to keep it from flinching, and the sheer strake, in return, does as much for the stringer. But the upper deck stringer and plating of a ship have not a duty strictly analogous to that of the upper member of an I section beam, and this is notably the case when the sheer strake extends above the deck. For in that condition the upper edge of sheer strake may be ruptured without the deck plate being perceptibly bent. An interesting case illustrating what I am endeavoring to show you came under my notice some time ago. A sheer strake was wounded by the presence of a number of circular lighting and ventilating scuttles, besides having the ordinary relatively weak places at its butt connections. And yet when under a severe hogging stress the sheer strake was ruptured at where a solid half round iron moulding on the upper edge was butted. So you will see that such a simple break in the continuity of strength on its upper edge as was afforded by a 3-inch solid cope iron was sufficient to cause failure in the sheer strake to take place at that point. Moreover, the fracture avoided the butts of the sheer strake, and the holes cut for side lights, notwithstanding that one of these latter was only a short distance away. No injury was sustained by the stringer plate, although the vertical flange of the gunwale bar was torn, and the horizontal flange a little bent.

In another vessel, recently come off a stormy Atlantic voyage, the upper deck plating was torn from the corners of a cargo hatchway nearly to the sides of the vessel without a movement being visible in a butt of the side plating. This hatchway was nearly, although not quite, at the middle of the length, but at midships there was a larger opening for machinery, the plating at the corners of which was not torn. Now, why this apparent eccentricity in the tear? Of course there was a reason for it, and one had not far to seek for that reason. Closely adjacent to the tear was a transverse water-tight bulkhead, which contributed an element of stiffness to the plating alongside it. Had the bulkhead not been there distortion would probably have resulted without fracture. But the local stiffness prevented distortion by the racking stresses operating on the deck, and consequently fracture resulted. This does not show such bulkheads to be elements of weakness, but rather the contrary. What it shows is the necessity for seeking the maintenance of continuity of resistance to stresses. The corners of the wide hatchway should properly have been secured with doubling plates—a precaution which is always desirable, and especially so when the large opening is closely adjacent to a stiff transverse bulkhead. Regarding the fracture to the sheer strake, there can be no doubt that the vessel in question was structurally weak, or the sheer strake would not have torn at all, either at the butt of a cope iron moulding or elsewhere. But that the rupture should have occurred at such a place shows how important it is to maintain not only general strength, but continuity of strength of the upper part of the side plating of a vessel.

* * *

Sam Weller once asked "Did anyone ever see a dead donkey?" and I would class with that inquiry, "Did anyone ever see a sheared rivet?" I have come across many cases of structural rupture—in one instance that of a vessel broken in two—and many instances of bottoms set up, plating torn and keelsons broken and distorted. Moreover, I have had to do with very many cases of damage by collision in which much material was torn asunder. But I have seen very few sheared rivets, and these for the most part have been in beam cases. From this it would seem that whatever deficiencies there may be in the riveted joints of iron and steel vessels the faults are not in the rivets but in the materials riveted. A very old experience with butt joints in shell plating is the rapidity with which they waste at the bilges of comparatively long vessels, more epecially when engaged in certain trying trades, as that of North Atlantic. To obtain the speed desired in passenger service it is found desirable to maintain rather large proportions of length to depth. This, of course, tends, especially in steel vessels, to accentuate any tendency which may be set up in the way of bending in a seaway. Now, I do not suppose that in any well-designed and constructed steamer the bending can be very considerable, but it is easy to conceive that a movement, however slight, is often set up at the butts, and this movement will be greater on the outer than at the inner strakes of the plating, because the latter are afforded so much stiffening at their butts by the overlaps of the former. Moreover, the butt straps to outer strakes, when fitted on the inside of the vessel, do not extend to the full breadth of the butt. Now the corrosion which takes place at these butts is not simple oxidation. The butt joints when found wasted are always blackened, and the iron or steel is found converted into a carbonate of iron, very much resembling plumbago in appearance. I have never heard any authoritative explanation from a chemist in regard to this phenomenon, but there can be no doubt that the corrosion is due to the action of free carbonic acid gas in the sea water upon the iron or steel plating. That this action should be limited to these strakes seems to me to indicate that globulas of carbonic acid gas are imprisoned under great pressure between the butt joints of the plates every time the vessel is placed under a severe bending stress in a seaway. Be this as it may, the remedy of fitting outer butt straps is found to be a sufficient one.

(TO BE CONTINUED.)



CAR FERRY BOAT "PERE MARQUETTE," FLINT & PERE MARQUETTE R. R.—1. LOADING AT THE DOCK.

AMONG the fueling firms on the lakes the Cuddy-Mullen Coal Co. is worthily noted as being exact, prompt and courteous in its business dealings, and perhaps more particularly so with the marine fraternity, owners, masters and engineers. Satisfactory arangements and services, are usually agreeable and these at least is always assured in transactions where the Cuddy-Mullen Coal Co. are concerned.

ANNUAL REPORT OF THE BOARD OF MANAGERS OF THE LAKE CARRIERS' ASSOCIATION, JANUARY 24, 1899.

To the Members of the Lake Carriers' Association:

The Board of Managers of the Association submits herewith its annual report of the proceedings and operations of the association during the past year.

TONNAGE.

The tonnage enrolled on the books of the association for the year just closed was 686,014 tons.

The following is a comparison with the tonnage of former years:

1894, tonnage	590,000
1895, tonnage	618,000
1896, tonnage	722,863
1897, tonnage	687,237
1898, tonnage	686,014

The tonnage of the past year is almost exactly the same as in the preceding year, in spite of the temporary withdrawal of one very large and prominent fleet.

An analysis of the tonnage list shows a continued dropping out of the small vessels, in spite of the lower rate of dues which they now pay. The enrollment shows 163,562 tons of vessels with less than 1,200 tons registered tonnage. This is a material decrease in the tonnage of these smaller vessels from the previous year. In 1896 the association had 225,000 tons of vessels below 1,200 tons, and in 1897, 185,000 tons. Another year will see a still further decrease in the tonnage of the smaller vessels, as quite a large number of these vessels have left the lakes during the past season, and of course it is well understood that practically no small vessels are now being built. The rules of the association require that a member should put in his entire fleet, and an examination of the membership list shows that by far the greater part of the small vessels in the association become members because they are owned in common with other large vessels. Out of the entire membership of the association there are only 58,359 tons of vessel property comprised in fleets which are entirely composed of small vessels.

FINANCES.

The treasurer's report will be submitted to you, showing in detail the receipts and expenditures during the past 12 months. The statement does not differ materially from that made last year. It shows that the amount of dues that have been so far collected this season is about $500 less than was collected last year; that at the present time there is practically no money in the treasury, and that there are unpaid liabilities amounting to $3,348.43. Last year the treasurer reported unpaid liabilities amounting to 3,370. There were, however, more than $1,000 of the annual dues of the past year uncollected at the time the treasurer's report was made up. Between three and four hundred dollars of this sum has already been collected, and of the balance of $760 nearly all is good, and about half of the same is due from one member of the association. When collections of the dues of 1898 are finished, the association will have about $2,500 of unpaid liabilities. Two years ago we were between four and five thousand dollars behind. Last year we were about $3,000 behind, and this year will show results slightly better than last year.

OPERATIONS OF THE SHIPPING OFFICES.

Shipping offices have been maintained by the association during the past year at Cleveland, Chicago, South Chicago, Buffalo, Ashtabula, Toledo and Milwaukee. A condensed report taken from the annual report of Chief Shipping Master Rumsey shows the total number of men shipped through the various shipping offices maintained by the association during the past season to be 16,508, as compared with 13,139 in 1897 and 11,838 in 1896.

The following table shows the number of men shipped through each office in 1898 as compared with 1897:

	1898.	1897.
Cleveland	3,799	3,117
Chicago	2,911	2,515
South Chicago	1,914	1,566
Buffalo	2,003	1,745
Ashtabula	2,358	1,613
Toledo	1,112	1,049
Milwaukee	1,718	1,385

In addition to the above, in 1898, 512 men were sent from the Cleveland office to other ports; 134 were sent from the Ashtabula office to other ports, and 45 men were sent from the Chicago and South Chicago offices to other ports.

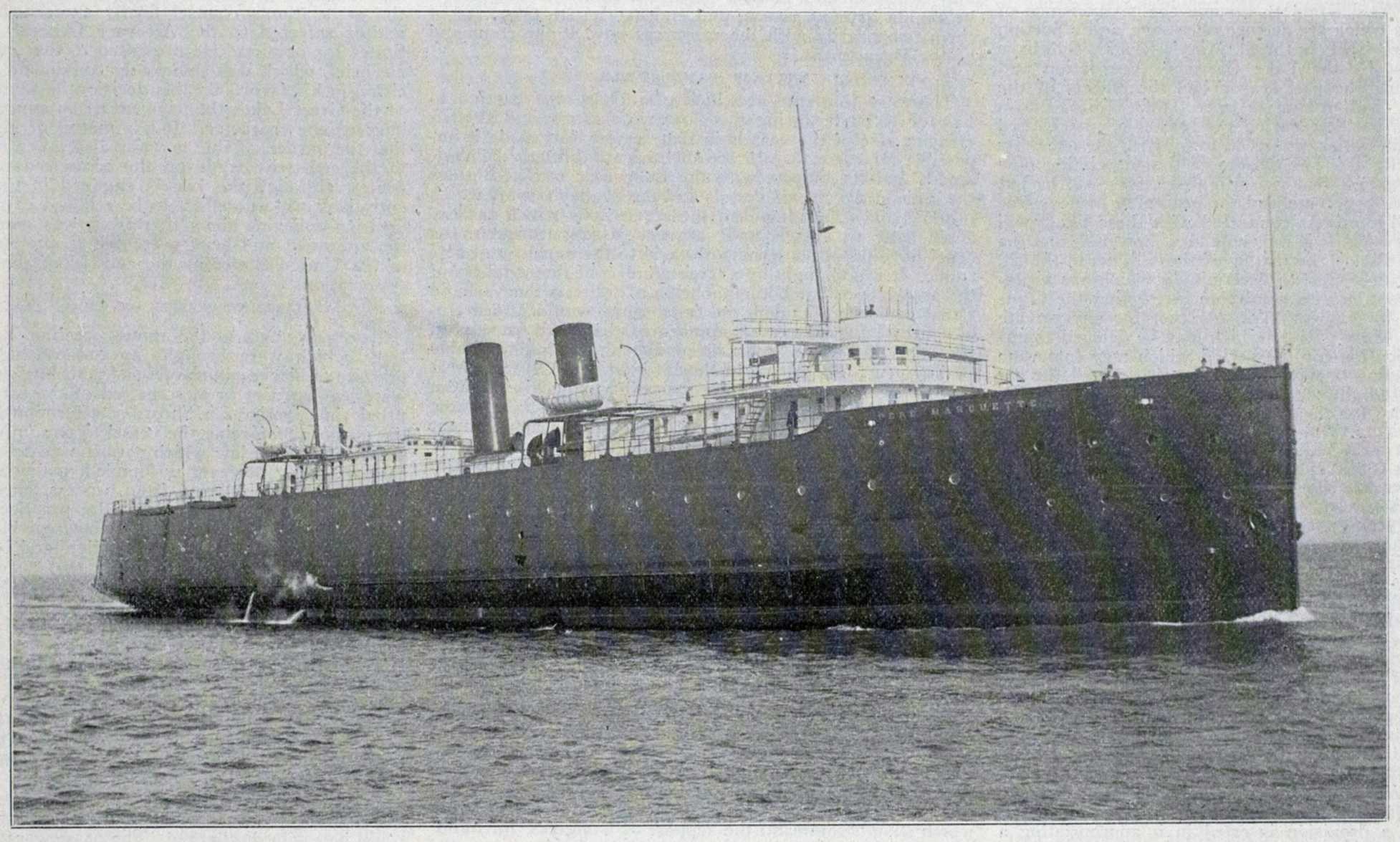
The expenses of the shipping offices during the past season were $10,752.88, considerably more than half the entire expenses of the association. It has therefore cost the association during the past year about 65 cents for each man put on board of vessels by the shipping offices.

The Board of Managers desires once more to call the attention of those members of the association who do not use shipping offices to this feature of the annual report. Some members of the association who do not use the offices themselves have at times appeared to think that they were not extensively used. The details of the report just given will serve to correct this impression. There can be no doubt that the beneficial effect of the shipping offices in handling the labor question on the lakes is received by all owners of vessels on the lakes whether they use the shipping offices or not. In fact, owners of vessels on the lakes who do not join the association and contribute nothing to its support inevitably receive a considerable portion of the benefit of its activity. This is just as true of the shipping offices as it is of the private lighting and legislative work of the association, benefits of which are necessarily enjoyed by all vessels.

GRAIN SHOVELING.

At the annual meeting in 1898 the Lake Carriers' Association voted to give the contract for all grain shoveling at Buffalo, N. Y., to Mr. William J. Conners, of that city, at the price of $2.95 per thousand bushels, a reduction of 40 cents per thousand bushels from the contract price of the previous season. Of the $2.95 to be paid to Mr. Conners he was to pay $1.85 per thousand bushels to the grain shovelers for manual labor and $1 per thousand bushels to the elevator for the use of steam shovels, leaving a profit of 10 cents per thousand bushels to the contractor. After obtaining the contract at Detroit, the contractor opened negotiations with the elevators to obtain the use of their shovels at $1 per thousand. He finally agreed with three of the elevators for the use of their shovels at this price. The other elevators refused his offer. Considerable ill feeling was aroused in the course of the negotiations, which finally came to a deadlock; the contractor having obtained the use of the three shovels above referred to, with little prospect of obtaining the use of any other shovels at his figures. He then openly announced his intention to shovel the grain by hand. The elevators on their part announced their intention of abandoning the contract system of shoveling, which had given satisfaction to vessels for four years past, and of returning to the old system under which each elevator had its own gang of shovelers on its own dock. Matters having reached this stage, and the opening of navigation in the spring of 1898 being close at hand, the Executive Committee of the association met at Cleveland on March 22, with a view to some settlement which would involve a continuance of the contract system of shoveling and the use of steam shovels. The Buffalo elevator owners were anxious to avoid the difficulties and losses which would attend a failure to arrive at an amicable settlement and so expressed themselves. On March 23 a conference was held in Buffalo between a committee of the vessel owners and the elevator owners, which led to a free interchange of views, but no settlement was arrived at. On March 28 another meeting of the Executive Committee was held at Cleveland, and to this meeting were invited, in addition to the members of the Executive Committee, all the members of the Committee on Grain Shoveling, and all other vessel owners who could be reached on short notice. The entire matter was carefully talked over, and the meeting took steps for a further conference with the elevator owners. At such conference, held at a later date in Buffalo, an agreement was arrived at upon the following basis: The price of shoveling at Buffalo for the season of 1898 was fixed at $3.10 per thousand bushels; 25c per thousand bushels less than the price in 1897, and 15c per thousand bushels more than the price made at the last annual meeting. In arriving at this result all parties made concessions; the vessel owners conceded 15c per thousand bushels on the contract price, the elevators conceded 15c per thousand on the price of their steam shovels, and the contractor threw off one-half of the profit on his contract. The results to the vessel owners, therefore, were a net reduction for the season of 1898 from the previous year of 25c per thousand bushels in the cost of grain shoveling at Buffalo, the retention of the contract system, the use of the steam shovels at all the elevators, and the establishment of a condition of peace and concord instead of controversy followed by law suits. There were some members of the Lake Carriers' Association who criticised the action taken, but a full account of all the proceedings was sent to each member of the association, and in the main the action taken by the Executive Committee was approved. No member of the association who did not actually attend the conference between the various parties to this controversy could appreciate the difficulties of the situation, and to the members of the Executive Committee and the Grain Shoveling Committee the action taken seemed clearly the right thing to do. It was a gratification to the Committee to find that their action so generally received the support and approval of the members of the association.

The grain receipts at the port of Buffalo during the year amounted to 221,383,945 bushels. The reduction in the cost of grain shoveling of 25c per thousand bushels from the



CAR FERRY "PERE MARQUETTE," FLINT & PERE MARQUETTE R. R.—ON THE LAKE.

contract price of 1897, produced a saving to the owners of vessels of about $45,000. It will be noted that this sum is more than double the amount of the membership dues paid by all the tonnage in the association for the year 1898.

PRIVATE LIGHTING IN 1898.

The association has been able to maintain its private lights in the Detroit River during the year 1898 at pracically the same price which was paid for the service in 1897. The total expenses for lighting in 1898 were $2,900.00. No further reduction in this expense can be made. All the lights maintained are in Canada, where our own government cannot undertake their maintenance. The meeting of the International Commission to settle controversies between Canada and the United States presented a favorable opportunity for the association to urge upon the American Commissioners at the conference the insertion of a provision in any final agreement or treaty arrived at by which the Canadian government would undertake the maintenance of the lights on the Canadian side of the international waterway, which are so necessary that vessel owners have maintained them out of their own pockets for nearly fifteen years past. The association, however, had another matter of importance to present to the Commissioners, as some of its members thought that it was better to concentrate the work of the association upon the one thing hereinafter referred to, the opportunity to urge the Canadian government to maintain our private lights was permitted to pass by.

For several years past members of the association have been importuned by light speculators maintaining private lights in the St. Mary's River to contribute so much per boat for the maintenance of their lights. Several of these lights are necessary, others are not. It is the policy of the Lake Carriers' Association to assume the maintenance of all private lights which are deemed necessary, and a portion of the speculators' lights in the St. Mary's River would have been taken over by the Lake Carriers' Association and maintained during the past season had the officers of the association not had reason to expect that lighted buoys would be put in position during the season by the United States goverment, which would do away with the necessity for the private lights. The officers of the association now have reason to expect that these lighted buoys will be put in position by the government at the beginning of next season, and that all questions connected with these lights will be solved in this way. It is recommended, however, that the annual meeting discuss the matter of these lights in the St. Mary's River with a view to determining which are necessary and the adoption of a resolution instructing the Committee on Aids to Navigation to contract for any private lights in the St. Mary's River which may be deemed essential to safe navigation for the period which may intervene between the opening of navigation next season and the assumption of these lights or other lights which will do away with the necessity for them, by the United States government.

AIDS TO NAVIGATION.

The Committee on Aids to Navigation of the association has been somewhat disappointed in the result of their efforts during the past year to secure additional aids to navigation on the lakes. The coasts of the lakes are now generally well provided with lights and fog-signals. The long list of necessary aids to navigation which was submitted to the Light House Board by the association in 1896 has been for the most part provided for by Congress since that date. With the exception of a light and fog-signal on Middle Island, Lake Huron; Rock of Ages, Lake Superior, and one or two other points of less importance, no expensive aids to navigation are now being urged upon the Light House Board and Congress by the association. Our efforts during the past year have been largely directed towards the obtaining of an additional supply of lighted buoys, and the success which was confidently expected in this particular has not been obtained. When the sundry civil appropriation bill was pending in the last Congress, the officers of the association sought to have a provision inserted in it appropriating a certain sum of money for gas buoys to be used on the lakes. The practice of the Light House Board, however, is to ask from Congress an appropriation of a lump sum for the entire buoyage service of the country, and the lighthouse authorities are inclined to oppose any provision by which they are compelled to expend any particular portion of the general appropriation for buoyage in any special locality. They desire to retain their freedom to make expenditures for buoyage in any part of the United States where they may deem it most needed. Our request for a specific appropriation for gas buoys on the lakes was opposed by the officers of the Light House Board, who requested that instead of such specific appropriation, the general appropriation for buoyage be made sufficiently large to cover all needs of the service, including a supply of gas buoys for lake use. Accordingly the sundry civil appropriation bill was amended in the Senate by increasing the appropriation for general buoyage to the full amount of the estimate submitted by the Light-House Board, it being the understanding that this amount was sufficiently large to provide additional gas buoys for the lakes. Nevertheless, although the Light House Board has in its hands sufficient funds to permit them to purchase gas buoys for lake use, and although we have urgently requested the board to do this, no gas buoys have been purchased out of this last appropriation for buoyage, either for the lakes or elsewhere. So far as the lakes are concerned the reason given for this by the lighthouse authorities is that the lighthouse tenders on the lakes have now all that they can possibly do to attend to their regular duties and to the gas buoys now in use. If more gas buoys are sent to the lakes, the board say they must have better facilities for handling them. Either a new lighthouse tender must be built for the Ninth District, which is now especially deficient in facilities for handling gas buoys, or a new boat for lighthouse service on the lakes, in the nature of a general supply boat must be provided, the duties of the boat to consist of carrying coal and oil to the lighthouse and fog-signal stations, with a gas supply for gas buoys, and the placing and removing of buoys at the opening and closing of navigation. Such a boat should have sufficient hold room to carry a large tank for gas, from which the buoys can be filled without taking them out of position, and also sufficient room to carry a number of gas buoys at once to and from their stations in the spring and fall. As the government of the United States purchased a large number of vessels at the beginning of the war, for which they have had no use since the war closed, it was thought by the officers of the association that possibly one of these vessels might be obtained for lighthouse services on the lakes, and so the delays incident to getting an appropriation for a new lighthouse tender avoided. This suggestion was made to the Light House Board, and it is understood that they looked over the supply of vessels available with a view to finding one which would be suitable for this service on the lakes. They reported, however, that the government had no vessel which was suitable for the service. As the matter stands, therefore, the future efforts of the association will be directed, first, towards obtaining from Congress an appropriation for a new lighthouse vessel on the lakes, suitable in all respects for the service, and, second, towards getting the government to place at the earliest possible moment such additional gas buoys as are most urgently needed, without waiting for the completion of the new tender. A recent conference with the lighthouse authorities gives reason to hope that the Board may see its way clear to send a number of gas buoys to the lakes at the beginning of next season, and endeavoring to take care of them temporarily with the resources now at the command of the Department.

WELLAND CANAL TOLLS.

The very low rate at which grain has been carried to Lake Erie ports during the past two seasons, and the increasing size of the vessels in that service, has made it impossible for vessels which are able to pass through the Welland Canal to compete with the Lake Erie route. Besides the limit in the size of vessels and the available draft which the Welland Canal imposes, the severe tolls which are exacted both on vessels and cargoes passing through the canal have proved a serious obstacle to the expansion of its traffic. It was thought by a large number of the members of the association that if the abolition of tolls on the Welland Canal could be obtained, the canal route would afford employment to an increased number of the small vessels on the lakes for which it has been difficult to find profitable employment. The sitting of the International Conference at Quebec offered an opportunity for action upon this question, and at a meeting held in Cleveland in June last the whole matter was discussed and steps taken for the appointment of a committee whose duty it should be to submit to the American Commissioners at the International Conference the request of the Lake Carriers' Association that the abolition of the Welland Canal tolls be one of the concessions made by Canada to the United States, to be included in any agreement reached by the International Conference. A careful brief on the subject was prepared and the counsel of the association appeared before the American Commissioners at Washington and submitted an oral argument in addition to this brief on the subject. As the Commission has not yet arrived at an agrement, it cannot be foretold what action, if any, will be taken on this subject.

LEGISLATION FOR THE BENEFIT OF AMERICAN SHIPPING.

The last annual report made mention of the fact that a committee of the Lake Carriers' Association, consisting of Mr. F. J. Firth, the counsel of the association, and the secretary, had taken part in the conference between leading American shipbuilders and the large vessel interests on the coasts of the United States, with a view to preparing a bill which should command the support of Congress, for building up an American merchant marine in the foreign trade. At the time of the last annual report a preliminary conference had been held. The form of the bill had not yet been agreed upon. During the past year further meetings of your committee with the other interests named have been held, with the result that a bill has finally been prepared by the Hon. George F. Edmonds, counsel of the organized committees, which it is believed will not only command the support of the public, but is adequate to produce the results aimed at, viz.: the building of a large number of vessels with American capital and in American shipyards, which will take and hold part of the foreign trade which is now almost entirely monopolized by vessels flying foreign flags. The completion of the bill and its introduction in Congress was somewhat delayed by the Spanish-American war, but a bill has now been introduced in the Senate by the Hon. M. A. Hanna, and in the House of Representatives by Hon. Soreno E. Payne, within the past month. Hearings have been had before the Committee on Commerce in the Senate and the Committee on Merchant Marine in the Hous of Representatives, at both of which representatives of the Lake Carriers' Association were present. A strenuous effort is to be made to pass the bill.

WAR REVENUE LAW.

The new revenue legislation enacted by Congress to provide additional revenue caused by the expense of the war, contained among other things a provision taxing charters of vessels. The provisions of this act were interpreted by customs and revenue officials in various ways, and as no judicial interpretation of this provision of the law has ever been made, it is somewhat difficult to estimate what its effect upon our lake vessels would have been. If the tax were held to be applicable only to charters made in writing the tax paid by lake vessel owners in the course of the year would probable not have exceeded $50,000. Some of the customs officials held, however, that the tax was applicable to all charters, and that when the actual charter of the vessel itself was not made in writing, stamps to the amount of the tax would have to be affixed, nevertheless, to some document, perhaps manifest or clearance papers, it being held that for every charter of a vessel on the lakes, whether oral or in writing, the amount of the stamp tax would have to be paid in some way. Under this interpretation of the law the purpose and character of this tax upon lake vessels would have been appalling, and it has been estimated that it would have reached a sum as great as $250,000 each year. In June last the counsel of the association was requested by the Executive Committee to make a thorough investigation of the provisions of the war revenue law. In response to this request the counsel of the association spent about two weeks in Washington, and some time after his return the Treasury Department promulgated its decision, based upon the brief prepared by the association's counsel in behalf of the association, to the effect that the charter tax imposed by the war revenue law of 1898 was not applicable to vessels engaged in the lake and coastwise trade. The association's counsel obtained this very important decision in his favor after overcoming many obstacles. The contention on which he finally succeeded, viz.: that the war revenue act applied only to "registered" tonnage, and that the lake vessels were "enrolled and licensed" and not "registered," when first presented to the officials of the Treasury Department, was pronounced untenable. In spite, however, of the discouraging reception given to his arguments in the first instance, the association's counsel finally succeeded in getting the matter referred to the Attorney General of the United States for opinion. He presented to that official an elaborate brief, which was sufficiently convincing to secure a decision in his favor. By this decision he saved to the vessels of the Great Lakes the payment of an annual tax of a very burdensome character. It is a matter of gratification to us that the burden of this tax was also taken from the vessels in the coastwise trade on the ocean coasts of the United States, although the vessels engaged in that trade apparently had made no effort to be relieved of the tax, and the decision relieving them therefrom was made wholly upon the argument and brief presented to the Attorney General of the United States by the counsel of the Lake Carriers' Association.

LIBELING VESSELS ON SMALL CLAIMS.

Two years ago, at the annual meeting, one of the questions which were brought up for consideration was the practice of blackmailing vessels by libeling them just as they were leaving port or at some out of the way place and unusual time, perhaps a Saturday afternoon or evening, for the purpose of forcing the vessel to pay unjust claims. The provisions of the law which permit a vessel to be libeled on a small claim, however unfounded, make it impossible for the vessel to be relieved from process, except by giving a bond, such as is required by the practice of admiralty courts, have built up quite a business of blackmailing vessels in this way, it being well understood by the claimants in such cases and their attorneys that a vessel will pay a small claim, however unjust and unfounded, rather than submit to the delays necessary to release herself by bonding. This practice has not been confined to the Great Lakes, but it has been in force on the Atlantic coast. An instance is related where a New York & Long Branch steamer was stopped at 1 o'clock on Saturday afternoon, after the courts had closed, with 1,000 passengers on board. In another case a New York ferry boat, plying between New York and Jersey City, was libeled after she was fully laden with teams and trucks and passengers, and permission was not only refused the ferry boat to make her trip across the river and back again, but she was even prevented from leaving the slip to turn around so that her trucks and wagons could be easily discharged. The passengers were obliged to leave the boat and the trucks and wagons were obliged to back out one by one. For some time efforts have been made by officers of the Lake Carriers' Association, in connection with the officers of the National Board of Steam Navigation in New York, to agree upon the form of a measure to put an end to this iniquitous practice. A bill was finally prepared by the National Board of Steam Navigation, which was submitted to Congress, but it embraced some matters other than those referred to, and met with serious objection. Steps were taken to strike out the objectionable matter from the bill, and finally a bill was prepared which was approved by the counsel of the National Board of Steam Navigation and the counsel of the Lake Carriers' Association. This bill was introduced and referred to the Committee on Judiciary in the House of Representatives. Without following exactly the lines of this measure, a substitute bill was reported by the Committee on Judiciary which will remedy the evil complained of. The bill simply allows vessels to give a bond in advance, which bond shall secure their immediate release under regulations to be prescribed by the district court, until the amount of claims for which process has been issued and is pending against such vessel shall equal one-half the amount of the bond so given in advance. In other words, a vessel may file, under regulations to be made by the court, a bond of $5,000, and until claims against such vessel amounting to at least $2,500 are pending, the vessels will be entitled to immediate release from any and all admiralty processes without filing an additional bond. It will be seen that this bill does not abridge the rights of creditors in admiralty or the right of seizure. Claimants are entitled to have full security for their claims. But if such

security is given, and such is the case where the bond is filed in advance, that is all they can fairly require. The seizure of the vessel and the subsequent giving of bond is solely for the purpose of affording the claimant security and if the vessel owner chooses to give such security in advance, the claimant has no cause for complaint. This bill has passed the House of Representatives and is now pending in the Senate. It is not apparent how there can be any reasonable opposition to it, and the necessary attention will be given to it to see that it is not forgotten. It is confidently expected that it will become a law before the close of the present session of Congress.

LAKE LEVELS.

In view of much controversy during past years on the question of whether the lake levels were being permanently lowered, either by reason of channel improvements or climatic changes, the secretary of the association has, during the past year, obtained monthly reports of government observations of lake levels taken at the different lakes, with a view to tabulating the same and keeping records, which, after they have been kept a sufficient length of time, will tend to show whether important changes are going on affecting the available draft of water in the lake channels and the carrying capacity of lake vessels. The tabulated statement showing the records since the opening of navigation last spring is presented herewith:

Lakes.	Month.	Comparative Level by Months.		Mean Level of Lake During Entire Period of Observation.	Above or Below Corresponding Month in 1897.		Above or Below General Average Lake Level.	
		1898.	1897.		Above.	Below.	Above.	Below
Superior	April	600.90	601.55	601.46		.65		.56
	May	601.12	601.89			.77		.34
	June	601.62	602.22			.60	.16	
	July	602.03	602.52			.49	.57	
	Aug.	602.16	602.64			.48	.70	
	Sept.	602.26	602.58			.32	.80	
	Oct.	602.20	602.38			.18	.74	
	Nov.	602.00	602.08			.08	.54	
	Dec.	601.77	601.65		.12		.31	
Michigan	April	580.10	579.50	581.16	.60			1.06
	May	580.38	579.99		.39			.78
	June	580.51	580.26		.25			.65
	July	580.49	580.45		.04			.67
	Aug.	580.29	580.39			.10		.87
	Sept.	579.94	580.14			.20		1.22
	Oct.	579.93	579.85		.08			1.23
	Nov.	579.52	579.59			.07		1.64
	Dec.	579.18	579.37			.19		1.98
Huron	April	580.00	579.40	581.06	.60			1.06
	May	580.12	579.97		.15			.94
	June	580.28	580.21		.07			.78
	July	580.38	580.39			.01		.68
	Aug.	580.27	580.40			.13		79
	Sept.	580.08	580.14			.06		98
	Oct.	579.77	579.79			.02		1.29
	Nov.	579.69	579.67		.02			1.37
	Dec.	579.50	579.37		.13			1.56
Erie	April	572.862	572 323	572.86	.539		.002	
	May	572.98	572.79		.19		.12	
	June	572.991	572.843		.148		.131	
	July	572.766	572.812			.046		.094
	Aug.	572.656	572.642		.014			.204
	Sept.	572.35	572.292		.058			.51
	Oct.	572.089	571.837		.252			.771
	Nov.	572.05	571.979		.071			.81

It shows that on Lake Superior the stage of the water during the past season has been materially above the averages of the twelve years during which regular observations of the stages of the water on that lake have been made. Lakes Michigan and Huron have stood during the past year about one foot below the general average of the past 28 years, while Lake Erie has not greatly varied from the general average level of that lake for 28 years past. So far as they go, these results tend to confirm what the engineer officers in charge of channel improvements on the lakes have always contended, viz.: that the changes in the lake levels from year to year have been produced solely by variations in annual rainfall on the area included in the lake watershed, and that the extensive channel improvements made in late years have not in any respect produced the lowering of lake levels. The fact that, taking all the lakes together, the stage of water during the past year has been very close to the average stage of water during the considerable periods covered by the observations of the government, also tend to show that no climatic changes have been going on which have materially impaired the lake water supply. When the Chicago drainage canal goes into operation, a new outlet for Lake Michigan and Lake Huron will be created, which must necessarily affect the level of those lakes to some extent.

The attention of the association has also been directed during the past few months to a commercial undertaking at the Sault Ste. Marie, which must be carefully watched to prevent disastrous effects on the lake levels of Lake Superior, and the available draft of water through the St. Mary's Falls Canal. A power company is now engaged in building a canal for the development of water power at the Sault, which is to take water from the St. Mary's River above the ship channel and discharge it again to the river below. The capacity of this canal is so great that if the full amount of its estimated capacity is drawn through it, it will provide an additional outlet from Lake Superior, which will materially lower the levels of that lake unless the flow of water through the river proper above the rapids is materially checked by the building of compensatory dams. The government of the United States has expended in the neighborhood of the Sault fully $10,000,000 to increase the available draft of water from Lake Superior. It is inconcievable that the public authorities should permit the value of these improvements to be materially impaired by a private enterprise. The existing laws give to the Secretary of War full right to prevent any person or company from impairing the capacity or decreasing the navigability of the navigable waters of the United States. It would seem that he has full authority to prevent the proposed power canal from creating an additional outlet from Lake Superior, which would materially lower the water in that lake, until they have built sufficient structures in the natural channel of the St. Mary's River above the rapids to diminish the flow of water through the natural course of the river by as much as the capacity of the power canal. The possible damage to the lake interests in this instance is so great that the matter will have the most careful attention of the officers and managers of the association.

ROUTES FROM THE LAKE TO THE SEABOARD.

During the past twelve months little of importance has developed in this matter, but the coming year is likely to be full of interest. September, 1899, is now the date set for the completion of the St. Lawrence River canals, and unless unexpected delays occur, vessels carrying 75,000 bushels of wheat will be able to proceed to Montreal and Quebec.

The preliminary report of the Commission of Engineers, appointed to make surveys for ship canals from the lakes to the sea, with estimates of cost, will be published during the next three months.

The improvements of the Erie Canal undertaken by the State of New York, and for which an appropriation of nine million dollars was made by the State, have, for the time being, come to a stop. The nine million dollars have been spent, and it is now estimated that it will require $13,000,000 more to complete the improvements. The question now agitated is whether the canal will be able to command a large volume of business when the contemplated improvements are finished, or whether some provision for a further increase of the size of the canal and the lengthening and widening of the locks shall also be made a part of the work of improvement. In his first message to the New York State Legislature, Govenor Roosevelt was non-committal as to the policy he should follow in respect to canal improvement. He told the Legislature that he expected to communicate later in a special message on this subject. Meantime the various interests in the State of New York who believe in the future of the Erie Canal and desire an effective improvement are in consultation with a view of devising a plan which will command the support of the people of the State.

The purchase of the Erie Canal from the State of New York by the general government, and its adequate improvement into a barge canal, which is the plan so earnestly advocated by Major Symons in a valuable report to the War Department, will also doubtless come up for discussion when the report of the engineers who are surveying for a ship canal is presented to the War Department.

GRAIN BILL OF LADING.

The most important matter to come up before the annual meeting of the Lake Carriers' Association is a change in the form of the grain bill of lading now in use on the lakes. In many respects the conditions which prevailed in the grain carrying business have undergone severe change since the present bill of lading went into use. The objections to the present bill of lading may be considered three in number. First: There is a strong opposition to the ruling relating to overruns and shortages. Second: The present bill of lading is strenuously objected to because under it vessels are compelled to submit to long delays for which they receive no compensation. Third: The increasing size of the vessels has led to another important change in the grain carrying conditions. Formerly the rule was for a vessel to carry a single consignment of grain. At the present time, in the fall of the year, when the large ore carriers go into the grain trade, a single consignment on these vessels is a rare occurrence. One large vessel arrived in Buffalo last season with ten consignments of grain, and the consignees desired that the vessel go to nine different elevators to unload her cargo. It is a very common occurrence for a vessel to be obliged to go to three or four different elevators to unload. This involves the vessel in much extra expense, as well as in considerable loss of time. There is a feeling among vessel owners that abuses have crept into the grain carrying trade, and that considerations of very small importance to the shippers and consignees of grain are permitted to involve the vessel in serious delays and great losses.

At the suggestion of some members of the association, and in the interest of full information on this subject at the annual meeting, the secretary has recently sent out two circular letters on this subject. He has called upon the members of the association for a statement of their experience in the grain trade during 1898, with reference to overruns and shortages, and also with reference to extra towing expenses caused by the unloading of single cargoes at different elevators. The answers to this circular letter have been tabulated, and the tabulated statement will be ready for the Committee on Grain Bill of Lading, if such committee is appointed at the annual meeting. It is a well-known fact that grain shortages every season exceed the overruns. The annual report of Junius S. Smith, official weighmaster of the Buffalo Merchants' Exchange, shows that during the season of 1898 there was received at Buffalo 221,300,000 bushels of grain, of which Mr. Smith weighed 126,000,000 bushels. On this amount the shortages were 72,713 bushels, and the overruns 40,346 bushels. Assuming that the 98,000,000 bushels of grain received at Buffalo which were not weighed by Mr. Smith showed similar results, the total excess of shortages over overruns at Buffalo in 1898 was about 57,000 bushels. At an average value for all kinds of grain of 50c a bushel, vessels were compelled to pay for shortages at Buffalo in 1898, $28,500 more than they received for overruns. It is probable that most vessel owners who read this statement will be surprised that the excess of shortages was not larger than it really is. They will remember some of their own unpleasant experiences in paying for shortages, but the figures just given tend to show that the opposition of vessel men to the present rule relating to overruns and shortages is not due so much to the severity of the loss incurred by them as to its unequal distribution. It is quite conceivable that a fleet of vessels engaged in carrying grain to Buffalo might come out ahead in the season, under the present practice, while another fleet of equal size might come out $5,000 behind.

The other circular letter sent out on this subject was sent by the secretary to all the principal shippers of grain at western lake ports, to the agents of the railroads to whom the grain is consigned at Buffalo, and to the principal receivers and exporters of lake grain in eastern seaboard cities. This circular called attention to the various points in which vessel owners complained of the present bill of lading, informed them that the subject would be the principal subject to be discussed at this annual meeting of the association, and invited them, as interested parties, to attend the meeting at Detroit or have some one in Detroit represent them. The difficulties connected with a satisfactory settlement of the question are well known to be many and great. It is probable that it will have to be thoroughly discussed at Detroit from a vessel owner's point of view, and then given into the hands of a special committee, which will have to take it up with the railroad people, and particularly with the eastern receivers of grain.

DETROIT RIVER BRIDGE.

During the past year the association has had little to do in connection with this matter, but as the year closes it becomes probable that it will again engage the attention of the new Board of Managers. Two bills have been pending before Congress for the construction of railway bridges across the Detroit River. Senate bill No. 4878, which was prepared in the interests of the Michigan Central Railroad, and Senate bill No. 4278, which is the bill prepared by the Wabash and Grand Trunk interests. Both of these bills provide for bridges of substantially the same character as that which was opposed to by the Lake Carriers' Association when the Michigan Central Railroad recently tried to obtain Congressional sanction for a bridge having piers in the river. During the past few days it has been reported in the public press that the different railroads have settled their differences, and that they were now prepared to join in an effort for a single bridge across the river. It has been reported that a new bridge bill has been introduced in Congress. Confirmation of this information has not been obtained up to the time of preparing this report. Should the matter take such form at Washington as to require the attention of the association, members may rest satisfied that the counsel of the association will take every necessary step to see that their interests are looked after and cared for.

When the annual report is submitted there will be found in connection with this report the annual report of the treasurer, an alphabetical list of the names, addresses and tonnage of the members of the Lake Carriers' Association, and an alphabetical list of the vessels enrolled in the association during the past year.

Respectfully submitted by the Board of Managers,
JAMES S. DUNHAM, President.
CHARLES H. KEEP, Secretary.

LIQUID FUEL.

Liquid fuel for steamers is exacting international attention among those whose province it is to study the economics of transportation by water. A notable trial of petroleum on the steamship Haliotis is reported as having brought out the advantage of the fuel most prominently. The bunkers of the ship are so constructed that they can be used for either oil or coal. From them the oil is pumped to a service tank above the boilers, whence it flows by gravity to a device at the furnace doors, where by means of a steam jet it is "pulverized," or broken into spray. Its combustion is carried on without any layer of incandescent coal. It is claimed that a given weight of oil develops more heat than the same weight of coal, which means a reduction in the dead weight of fuel that must be carried for a voyage. In the trial mentioned it was found that 2.27 pounds of ordinary English coal were used for each indicated horse power per hour, as compared with 1.67 pounds of oil.

In the Eastern trade, where steamers have to rely on inferior Japanese and Indian coals, the comparison is still more in favor of the liquid fuel. For instance, a steamer requiring a minimum of 500 tons of coal for her voyage from Aden to Singapore could cover the distance on 300 tons of oil, thus largely increasing her cargo capacity. The speed at which the fuel can be taken on board is another advantage. While the coaling in one hour may amount to 60 or 80 tons, 400 tons of oil can be pumped into the bunkers in the same time. The saving of labor is another important consideration. Once the burners are regulated, the supply goes on automatically, and a whole voyage may be run without once opening the furnace doors. This reduces the number of stokers, and those who are engaged are able to work under much pleasanter and more healthful conditions. Very little smoke is produced, a feature which commends the use of liquid fuel very strongly for men-of-war. The ease of its stowage also favors its use in the closely-packed interiors of torpedo-boat destroyers. The consumption of steam, involving a serious loss of fresh water, is one of its few disadvantages

MARINE RECORD

ESTABLISHED 1878.

Published Every Thursday by

THE MARINE RECORD PUBLISHING CO.,

Incorporated.

C. E. RUSKIN, - - - - Manager.
CAPT. JOHN SWAINSON, - - - Editor.
THOS. WILLIAMS, Chicago, - - Associate.

CLEVELAND, Western Reserve Building. CHICAGO. Royal Insurance Building.

SUBSCRIPTION.

One Copy, one year, postage paid, - - $2.00
One Copy, one year, to foreign countries, - - $3.00
Invariably in advance.

ADVERTISING.

Rates given on application.

All communications should be addressed to the Cleveland office.

THE MARINE RECORD PUBLISHING CO.,
Western Reserve Building, Cleveland, O.

Entered at Cleveland Postoffice as second-class mail matter.

CLEVELAND, O., JANUARY 26, 1899.

SALUTATORY.

From the MARINE RECORD'S first modest salutatory in the year of 1878, to the anniversary of our Twenty-first year, seems a longer step in the annals of lake history than that of any ordinary paths of industry. Longer, inasmuch as the vicissitudes of the marine interests have been greater, the developments of traffic wider, and the commercial progression more rapid than in any trade, class or profession extant.

During this space of time, the lake marine has risen by leaps and bounds from the building, equipment and transportation facilities offered by the 500-ton fore and aft schooner, to the output of high-classed steel steamers, the peers of any tonnage afloat, and carrying in one bottom close to the 8,000 ton limit. Such a developement and expansion is unknown in the annals of water-borne traffic in any other country, nor perhaps can it ever be equalled in the history of the world.

To the marine community, the change from small schooners to the largest passenger and cargo steamers afloat, "tells the tale;" to others who are not so well informed regarding current events on the lakes, we point with no small degree of pride. First, to the munificent appropriations of the Federal government, which made it possible to carry—say eighteen feet of water, where formerly but half that depth was available, also, to the, in some instances, magnificent breakwaters, piers and harbors of refuge, to the establishment of light-houses and light-ships, their construction, equipment and the excellent disciplinary system maintained throughout that service, down to the modern permanently lighted gas buoys, and the lesser though equally important pilotage facilities now made practicable through the adequate buoyage, beacons and ranges found necessary on account of the immensely increased proportion of daylight traffic.

The Steamboat Inspection, Life Saving and Weather Bureau Services, the Hydrographic Branch Offices of the Navy Department, as well as the Revenue Cutter Service and its patrol work, as aids in regulating traffic, also the humane paternalism of our government as evidenced in the Marine Hospital Service, are the most leading branches of the government, which have kept pace with the energetic and irrepressible advancement shown by private interests. If we here omit the measures now being taken to open up an adequate pathway to the coast, we may say that the Treasury Department, in its statistical province, has perhaps been the most lax of all the branches of the government. For many years the MARINE RECORD, unaided until the advent of the Lake Carriers' and Cleveland Vessel Owners' Associations, and alone in its class, collaborated all available data, printed columns and pages of so-kept and called custom house statistics, which, though we knew were inaccurate, we then considered one of our most reliable sources of statistical information, and, by dint of close attention to daily history in marine events, through the courtesy of the shipbuilders, owners, shippers, consignees, brokers and the general agents of marine insurance companies, as well as through a mass of correspondence throughout the year, we regularly heralded the ever-increasing importance of lake interests, and helped to fill pages of more or less reliable data contained in the Congressional Record, and as enunciated by legislators from the lake districts in both the House and Senate, besides contributing our due quota to the special information on matters maritime published in the press of this and other countries.

It is, perhaps, in statistics that we find the records of trade, traffic and transportation with their concomitant interests, still weak, notwithstanding our close application and best efforts in that direction. However, a new dawn is approaching, it is now found that figures are no longer to be juggled with, contradicted, or permitted to voice the vaporings of windy oratorical displays in the halls of legislation, or elsewhere. The Treasury Department will, in the future, it is hoped, assist the district officers of the Corps of Engineers, War Department, in compiling reliable commercial statistics regarding lake traffic, including all kindred interests, and thus will the maritime development of the Great Lakes be faithfully and officially recorded for the perusal and edification of all people, as well as for the eventual furtherance of the best interests of the illimitable west.

The foregoing is a succinct account of our stewardship up to the time we attained our majority. We have advanced in all particulars with the national, state, and local improvements, and will endeavor to keep pace, and in some instances perhaps a trifle ahead of future developments affecting the best interests and welfare of the lake marine and those industries with which it is most nearly concerned. Each week the happenings on the lakes are impartially chronicled and duly recorded in our columns, with increasing patronage and circulation the influence exercised by the MARINE RECORD, like that of all other marine interests, is being more widely acknowledged, and, we believe, the future has a much greater expansion in store for lake commerce, engineering, navigation and science, than even the most sanguine prognosticator would feel called upon to admit at the present time.

So do we make our responsive bow to those who have protected us during infancy—escorted us through the period of virile growth and now pleasantly launch us on the expansive depths of the greater expanse.

SHIPOWNERS placing contracts for new tonnage, or the builders who construct same, are not prone to rush into print with the exact figures paid per ton for the several different types of build and attendant expenses. Underwriters underwrite an insurance policy on the hull at an estimate of the total value, more or less, according to their discretion. Not only does the valuation of a bottom deteriorate year by year, but in the lake trade the actual value of a vesssel fluctuates almost each month throughout the season of navigation, inasmuch, as the property paying four or five per cent. on the capital involved for one month, may clear fifteen per cent., or at the extreme, lose money for the investors in the following month, though of course a mean may be taken for the entire season, and a balance arrived at therefrom. The same rule applies, according, to the trade, terms and length of charter, etc., on sea-going craft. The saleable value of a piece of floating property that is not for sale, is, to say the least, problematical, nor can an arbitrary, actuarial or academic value be logically placed thereon. Some vessels are contracted for and built at less cost than others of a similar type, model, etc., others may be finally completed, equipped, etc., at greatly enhanced figures over their original contract figures. However, we started out to say that while the MARINE RECORD has no desire to be quoted as an authority in placing an arbitrary value on any man's floating property, the estimated outlay required to float the list of thirty-one vessels contained in another column of this issue, is placed at nearly $4,000,000, or, in other words, the entire production of the American and Canadian shipyards now under contract, about equals the present fleet of the Bessemer (Rockefeller) Steamship Co., of Cleveland. We also note that some Bessemer Line tonnage is contained in the list of new boats.

WE were under the impression that space sufficient for our full quota of reading matter had been duly provided for in this issue, but it hasn't, therefore our usual special correspondence from the most prominent lake ports has been compelled to fetch up where it will not be heard from, besides, there are several very important technical communications which we have also had to reserve over until our next issue.

MARITIME LAW.

OREGON R. R. & NAV. CO. et al, vs. BALFOUR et al.
(*District Court of Appeals, 9th Circuit, Oct. 3, 1898.*)

ADMIRALTY—SUIT BY SHIP OWNER TO LIMIT LIABILITY—POWERS OF COURT.—The powers of an Admiralty Court in proceedings instituted by shipowners, under Rev. St. §§ 4283, 4284, to limit their liability, are as extensive, and its remedies are as effective, as are those of a Court of Chancery, where its jurisdiction is invoked in an equitable proceeding.

SAME—FAILURE TO SURRENDER VESSEL LIABLE—POWER OF COURT TO SEIZE.—Where shipowners have invoked the jurisdiction of a Court of Admiralty by a petition to limit their liability, under Rev. St. §§ 4283, 4284, and, having thereby secured the stay of proceedings by libelants, surrender but one of two vessels held by the court to be liable, the court, having full, equitable powers to adjust the rights of all parties interested, is not bound to dismiss the proceedings for that reason, but may by its own process, or its own order, seize the other vessel, and make distribution of the entire fund which it was the duty of the petitioners to tender by their petition, and such is the proper and only equitable course, where by reason of the proceeding, suits by libelants have been delayed for a number of years, during which the shipowners have become insolvent.

SAME—MANNER OF SEIZURE.—It is not material in such case, where the vessel has been brought into court, and her owner has stipulated to pay her appraised value, whether or not she was brought in by the appropriate process.

CORPORATIONS—REORGANIZATION—NEW CORPORATION AS PURCHASER WITHOUT NOTICE.—A recognized corporation, having the same officers and attorneys as the old, and succeeding to its property by purcha e at a receiver's sale, is not a purchaser of such property without notice of the rights therein of parties to pending litigation between them and the old corporation involving the right to a lien on such property, and cannot relitigate in such suit questions which have been adjudicated as against the old corporation.

ADMIRALTY—SUIT TO LIMIT LIABILITY—DISTRIBUTION OF FUND.—Where, in proceedings on the petition of shipowners to limit their liability to libelants of a vessel, their petition is granted, and the fund in court is insufficient to pay in full the amount found due to one defendant, the petitioners cannot complain that a portion of it is erroneously distributed to other claimants.

RES JUDICATE—QUESTIONS NOT RAISED ON FORMER APPEAL.—In a suit by shipowners, under the statute, to limit their liability to certain libelants of vessels, the court adjudicated the claims of the defendants, and distributed between them the fund in court. An appeal was taken by the defendants, and the decree was reversed on the ground that the petitioners had not surrendered all the property liable; but on such appeal no question was raised as to the validity of the claims allowed to the several defendants, nor was such question raised by new pleadings after the case was remanded. Held, that, as between the defendants, the validity of the claim of each was res judicate, and could not be questioned by any of the other defendants on a subsequent appeal.

Appeal from the Circuit Court of the United States for the District of Oregon.

TOWING COMPANIES ORGANIZE.

For the first time in the history of the lake trade the harbor towing and tug lines have an association. The organization was perfected at Detroit this week and will be known as the Tug Association of the Great Lakes. All the leading tug lines with the exception of the Johnson and Maytham lines of Buffalo, are in the association. The object of the new organization is for mutual benfits but no rates will be fixed and it will have no power over local associations. Members of the new association are Capt. W. A. Collier, of the Vessel Owners' Towing Co., and C. A. Morgan, of the Cleveland Tug Co., of Cleveland; J. S. Dunham and M. Barry, of Chieago; L. S. Sulivan, J. P. Nagle, of Toledo; E. M. Pierce, of Lorain; W. H. Meyer and T. W. Sheriffs, of Milwaukee; B. B. Inman and W. H. Singer, of Duluth; A. M. Carpenter, C. D. Thompson and W. B. Hanna of Port Huron; Benjamin Boutell, of Bay City; Edward Gillen, of Racine, and A. Ruelle, of Detroit.

Capt. J. S. Dunham was elected presldent and Capt. W. A. Collier secretary and treasurer. The annual meetings of the association will be held at Detroit the same time as the Lake Carriers' meeting.

What are the wild winds saying, dear, the winds that from Canada blow? They are saying I think that the coin spent in drink would come mighty handy just now, don't you think, to buy us a ton of soft coal, bless your soul, a ton of bituminous coal.

SIDE-LIGHTS—THEIR BEARINGS.

(Illustrated.)

Ships' side-lights, their bearings, and the information conveyed therefrom, can be briefly stated by the use of the accompanying diagrams.

Fig. 1 represents a red light bearing N.N.W. from the observer and it is desired to know over what points of the compass the light is proceeding. The rule or principle shown by the diagram simply resolves itself as follows: Take the opposite point to the bearing, then allow ten points to the left for the arc of visibility over which the light shows.

Fig. 2. An observer from any assumed position sees a green light bearing by compass N.N.E. and it is desired to know over what points of the compass the light is proceeding. As in the former case, we take the opposite point to the bearing, viz: S.S.W., and as the light is a green one, allow ten points to the right; thus may the arc of visibility of a ship's side-lights be easily and fairly accurately defined.

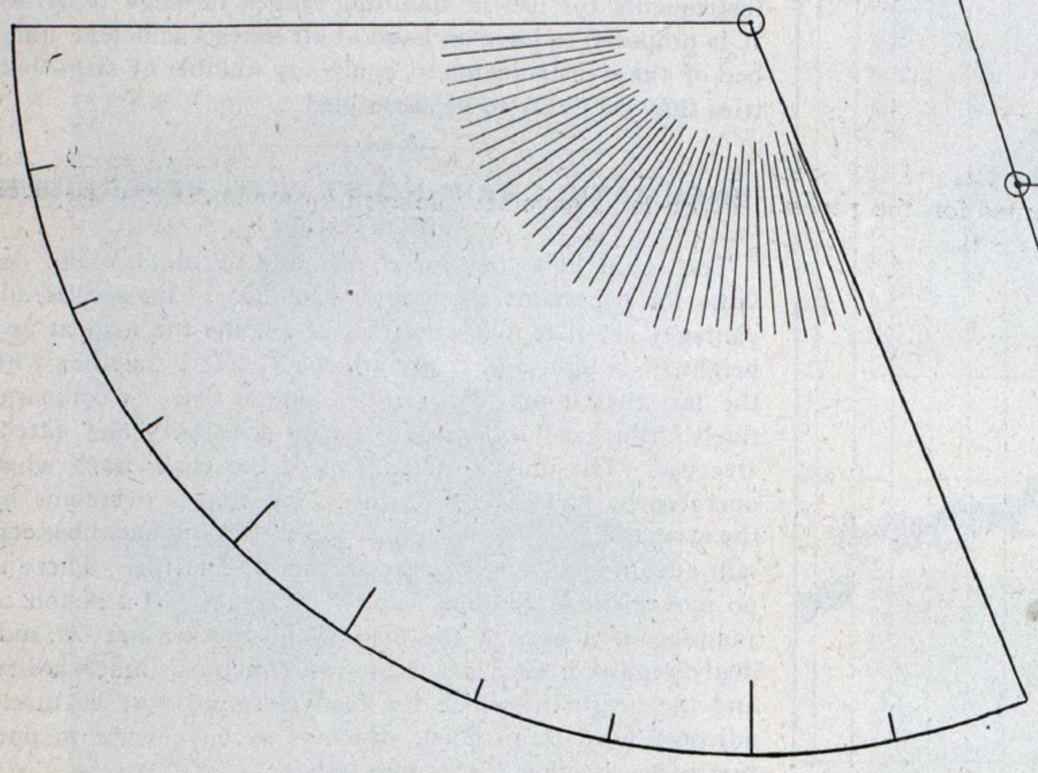


FIG. 1

Fig. 3. Having taken the bearing of a side-light, it is desired to know if there is any danger of collision, thereupon, a second bearing is taken, and, irrespective of speed, relative position of light and observer, etc., should the bearing remain identical, the point of collision is demonstrable.

FIG. 4

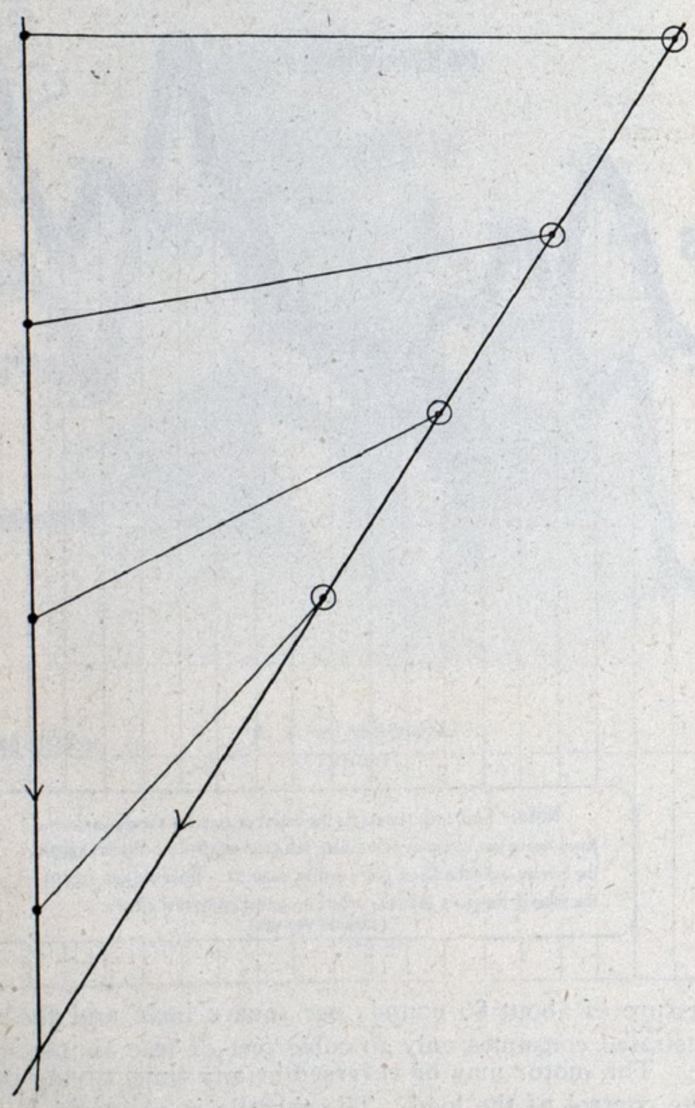


Fig. 4. The second bearing having been taken, it is found that the bearing has altered so as to be drawing more astern; in such an instance there will be no danger of collision and the observer will pass ahead of the light, each maintaining their course and speed.

Fig. 5. In this instance it is found that the bearing of the light has altered so as to draw more ahead, therefore, the light will pass ahead of the observer and there is no danger of collision, although it may be noticed from diagram numbered 5 that the light travels over a relatively greater distance than the line on which the observer may be placed.

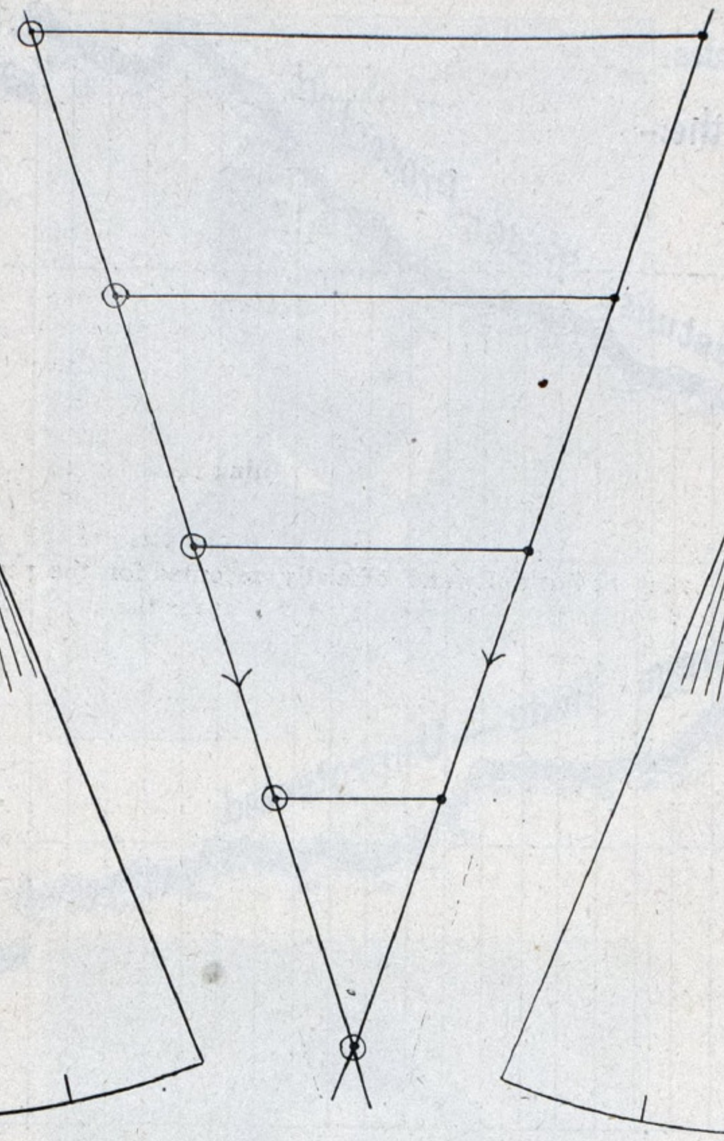
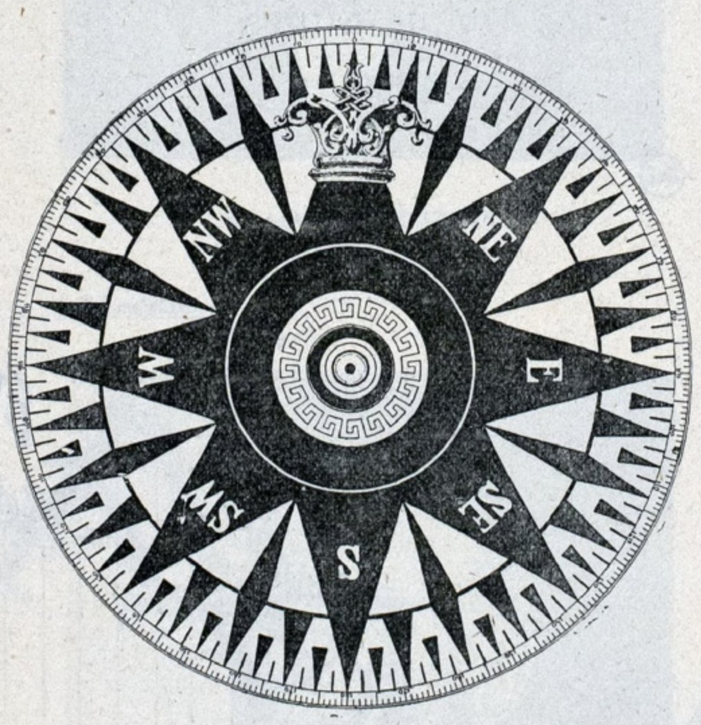


FIG. 3

Knowing the great value ascribed to actual and consecutive bearings, also that this feature of pilotage has not been given the prominence which it is so justly and practically entitled to, we have also added an illustration of the compass



COMPASS.

dial so that the theory may be comprehended and taken aboard by the reader at the moment of perusal.

The reader will observe that the bearings over which the principle applies, might be continued throughout the 32 of points the compass, and, in each instance, serve as a guide to anyone taking bearings, for, the several propositions are solved simply by taking a second bearing, if we omit the determination of the probable arc of visibility.

A SMALL NAVAL CRAFT FOR THE LAKES.

It is announced that the Navy Department will be ready to advertise for proposals for the construction of a new man-of-war for the lakes, just as soon as the high joint commission has announced its agreement to abrogate that section of the treaty of 1818 with Great Britain which prohibits either governments from increasing its armed force on the international borders.

The new man-of-war will be very similar to the Marietta, rated as an unarmored composite gunboat, and built by the Union Iron Works at San Francisco. She will be schooner rigged, with a gross tonnage of 806.11 tons and a net tonnage of 637.14, a displacement of 1,000 tons, mean draught twelve feet, length on load water line, when full equipped ready for service, 174 feet and a breadth of 34 feet. The gunboat will be driven by twin screws and a vertical triple expansion engine of 1,054 maximum indicated horse-power, capable of developing a speed of thirteen knots an hour. The vessel will carry a normal coal supply of 120 tons, but will have bunker capacity for 226 tons.

The armament will be six four-inch rapid fire guns in the main battery and four six-pound and two one-pound rapid fire guns, one Colt and one three-inch rapid fire field piece in her secondary battery. Her complement will be eleven officers and 129 men.

No name has yet been suggested for the new ship, and the Secretary of the Navy is open to receive suggestions.

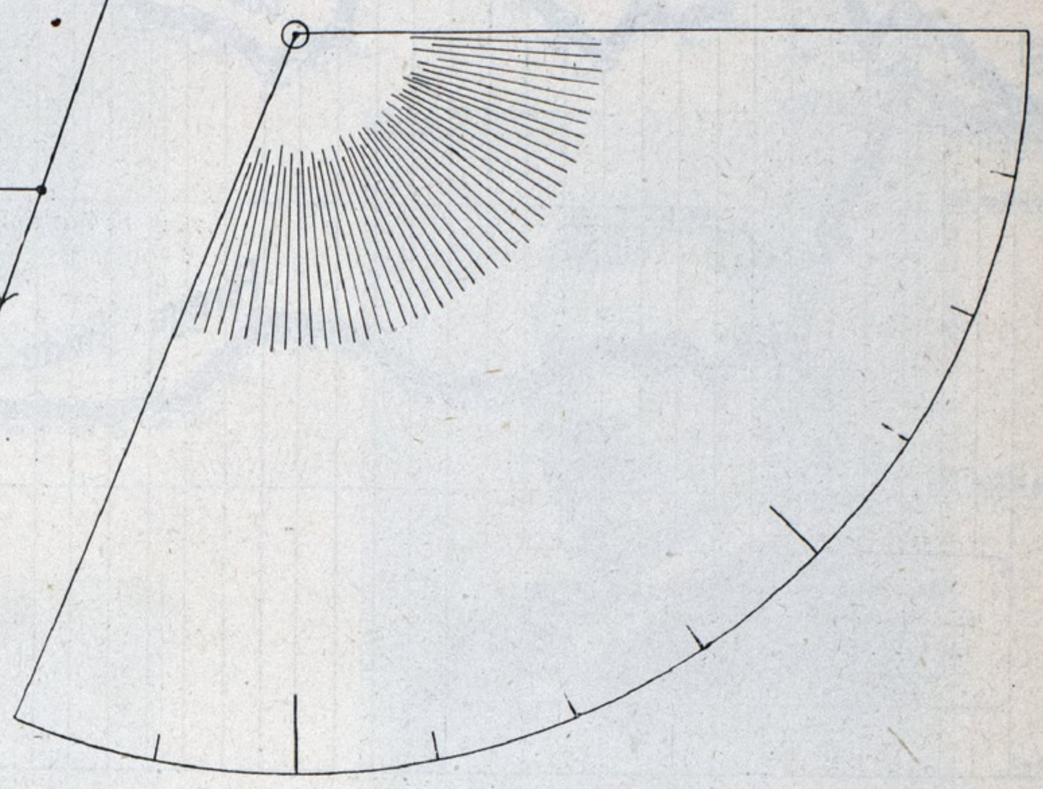
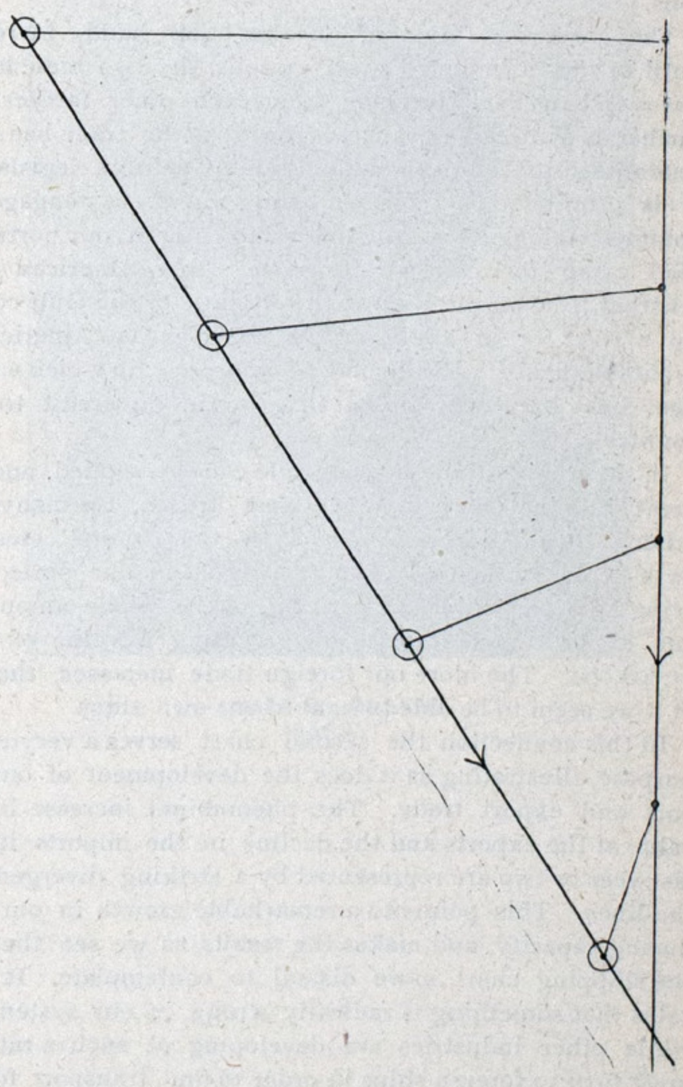


FIG. 2

THE British have chosen an odd name—the Venerable—for a new battleship which is just laid down at Chatham. She is to be 400 feet long, 75 feet beam and displace 15,000 tons.

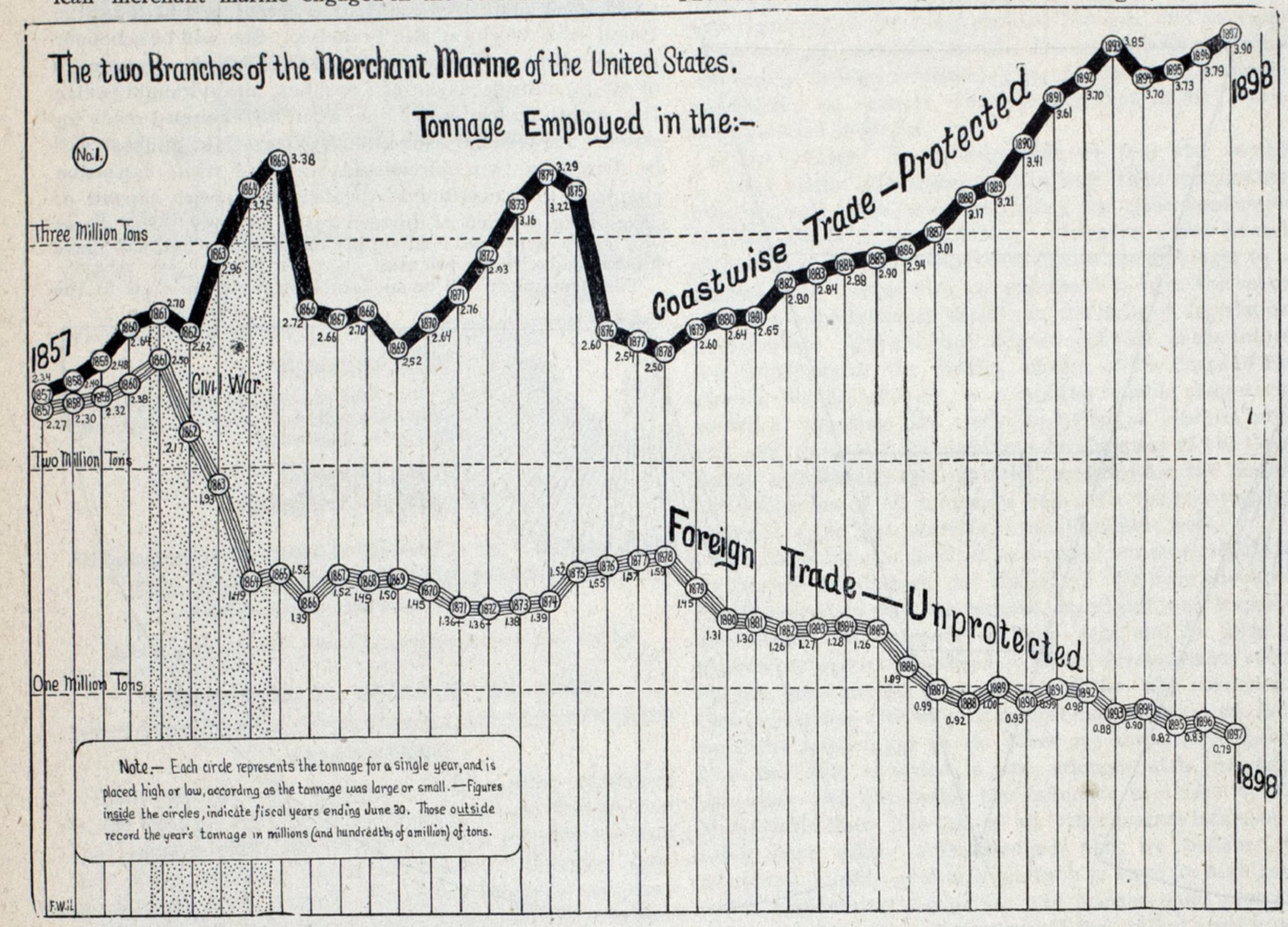
FIG. 5



A speed of 19 knots is expected. The most noteworthy fact about her is her principal armament will be 12-inch, 46-ton wire guns, a weapon that we have not yet seen our way to adopt.

THE UNITED STATES MERCANTILE MARINE—FOREIGN AND COASTWISE TRADE.

The accompanying charts, which have been courteously loaned us by the American Economist, of New York, point a lesson with great emphasis. In the first place, the American merchant marine engaged in the coastwise and the



foreign trade are contrasted, one showing a distinct upward tendency, while the other has moved almost steadily downward. In 1857, the two branches of the service were of nearly equal tonnage, each standing at about 2,300,000 tons. With the civil war our tonnage in the foreign trade fell precipitately, reaching 1,520,000 tons in 1865. The tonnage of the vessels in the coasting trade increased, however, in 1865, to 3,380,000. Since the war American shipping over sea routes has occasionally had periods of slight recovery, as from 1875-78, but since that time the losses have been steady, until, in 1897, the tonnage was reduced to 790,000 tons.

The coastwise shipping, on the other hand, increased until in 1897 it included 3,900,000 tons, the two branches of our merchant fleet diverging from each other farther and farther as the years advance. The coasting trade has been guaranteed to American shipmasters by definite legislation. It is prohibited to foreign shipowners to engage in commerce along our coast, that is, to enter at our ports and load cargo for carriage to some other American port, whether it be on the Pacific, the Atlantic or the Gulf coasts, up a river or in a lake. This has given to Americans a profitable field for the display of enterprise, in which a large fleet has been assembled that would do credit to any country.

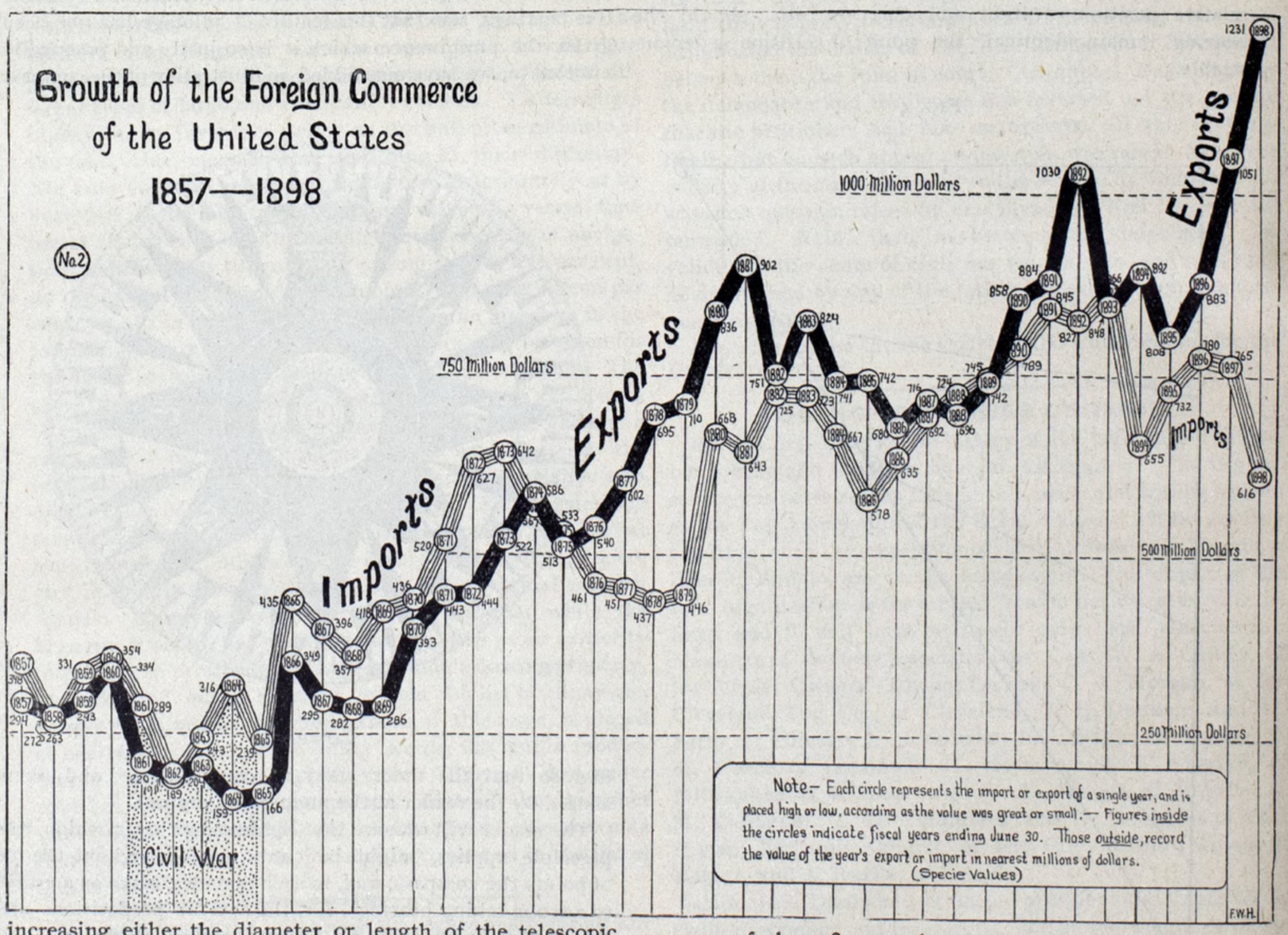
In the foreign trade no such rule can be applied, and the great shipping companies of Great Britain, Germany and other parts of Europe, assisted by the "tramp" steamer, have exploited themselves to great profit in our ports, carrying last year all but 9.2 per cent. of the whole amount of our exports and imports, aggregating a value of some $1,800,000. The more our foreign trade increases, the less of it we seem to be able to haul in our own ships.

In this connection the second chart serves a very useful purpose, illustrating as it does the development of our import and export trade. The phenominal increase in the value of the exports and the decline in the imports in the last year or two are represented by a striking divergence in the lines. This points to a remarkable growth in our producing capacity, and makes the resnlts as we see them on the shipping chart more dismal to contemplate. It indicates that something is radically wrong in our system, for while other industries are developing at such a rate, we must turn to foreign ships in order to find transport for the goods which go from and come to our various shores. It is a matter which calls for our immediate and most intelligent study and attention.

SIGHTS AND RANGE FINDERS FOR OUR COAST DEFENSE GUNS.

The War Department has placed an order with Warner & Swazey, of Cleveland, for three hundred telescopic sights to be fitted to the coast defense guns of the United States. The addition of these sights will, it is thought, increase the accuracy of the fire of these weapons, and they would be of great value in case of emergency caused by the destruction of a range finder. In appearance they somewhat resemble the Scott sight used in the English coast service. They differ from the English sight in producing an irregular image by means of Brashear prisms. This is accomplished without increasing either the diameter or length of the telescopic tube. The subject of a telescopic sight for great guns has given the ordnance officials no little concern for some time, says the special correspondent of the Evening Post. Owing to the limited demand for the instruments, there were not sufficient inducements for Amarican opticians to work out the problem, but the Spanish war awakened American makers to the fact that there was a real demand for first-class sights, and the present instrument is the result.

The new sight has a field of view of six degree. The deflection scale is graduated to three minutes of the arc, and the greatest reading is two degrees thirty minutes each side of the zero mark. The deflection can be adjusted by means of an outside scale at any time by the gunner without removing his eye from the eye-piece. The new sight is adapted for either field, siege, or coast defence service. With the present order the War Department will possess nearly four hundred and fifty telescopic sights for great guns. The same correspondent says that the War Department has settled upon the Lewis range finder. A number of ordnance officers have reported that for secondary stations either the Lewis or Rafferty range finder might be used. For primary stations the Lewis range finder was alone recommended. Besides range finders, orders have also been placed for azimuth instruments for use in obtaining ranges in siege batteries. It is proposed to have on hand at all times a sufficient number of these instruments to equip any number of siege batteries that are likely to be assembled.



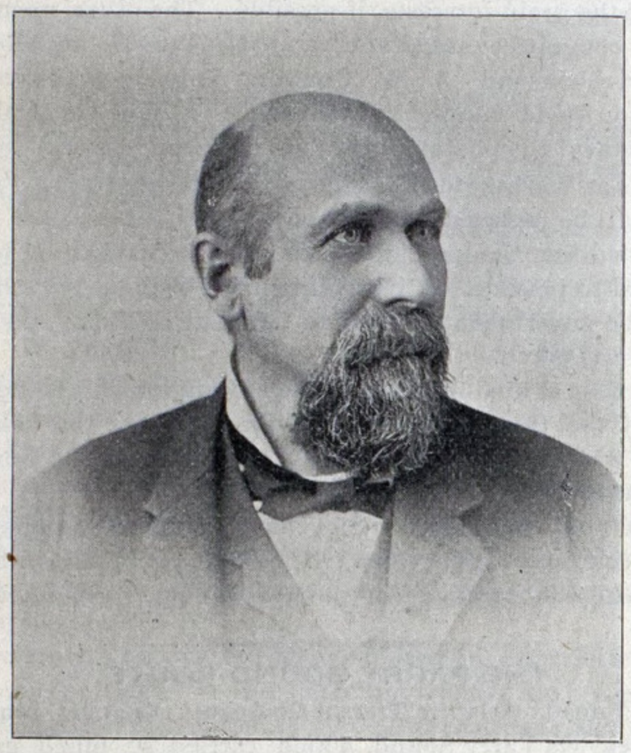
PNEUMATIC CHAIN HOIST WITH REVERSIBLE MOTOR.

The chain hoist has long been one of the favorite devices for use about shops and machinery. Its special advantages are that it is powerful and holds the load at any height, it is light and easily attached, which, together with the fact tnat it may be operated where there is comparatively little head room, explains its popularity and extensive use. The only disadvantage of the chain hoist when operated by hand is its slowness, but this is overcome by the attachment of an air motor, and the arrangement has certain advantages over all other forms of air lifts. There is no movement of the load caused by leakage of a piston or jumping of a part of the load when another part is suddenly removed, such as occurs with many cylinder hoists, and the height to which the load is raised may be nicely adjusted by a chain hoist, which is a convenience in putting axles or other pieces into lathes.

The hoist is manufactured and sold by the Chicago Pneumatic Tool Co. It is operated by a Whitelaw reversible air motor, and without the chain it weighs 40 pounds, and this size will lift 800 pounds. It is made in two sizes, the larger one having about double the capacity of the one illustrated. The motor is intended to work at a pressure of about 80 pounds per square inch, and the size illustrated consumes only 10 cubic feet of free air per minute. The motor may be reversed at any time, giving complete control of the load. The throttle is governed by the bar attached to the rear of the motor, and ropes hanging from holes in the bar are fitted with handles for operating the hoist.

A ROLL OF HONOR.

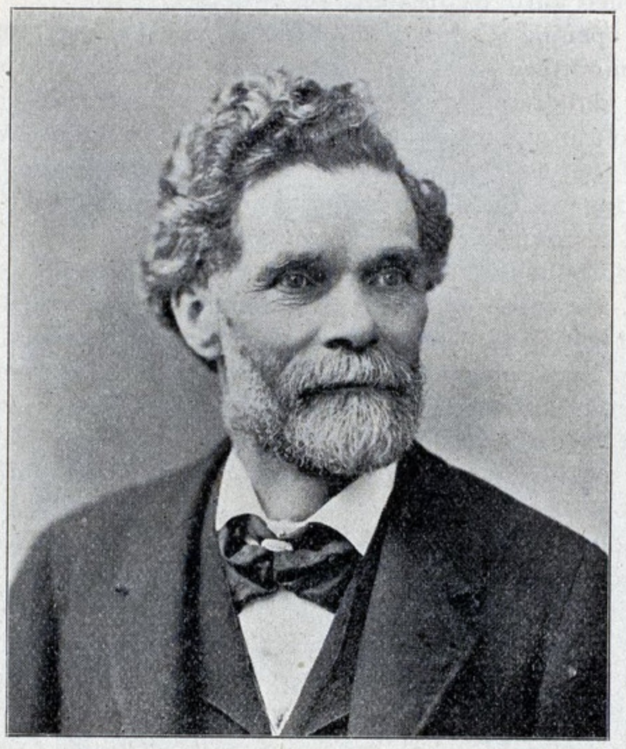
EX-PRESIDENTS LAKE CARRIERS' ASSOCIATION.



THOS. WILSON.
1893-4.

J. J. H. BROWN.
1896-7.

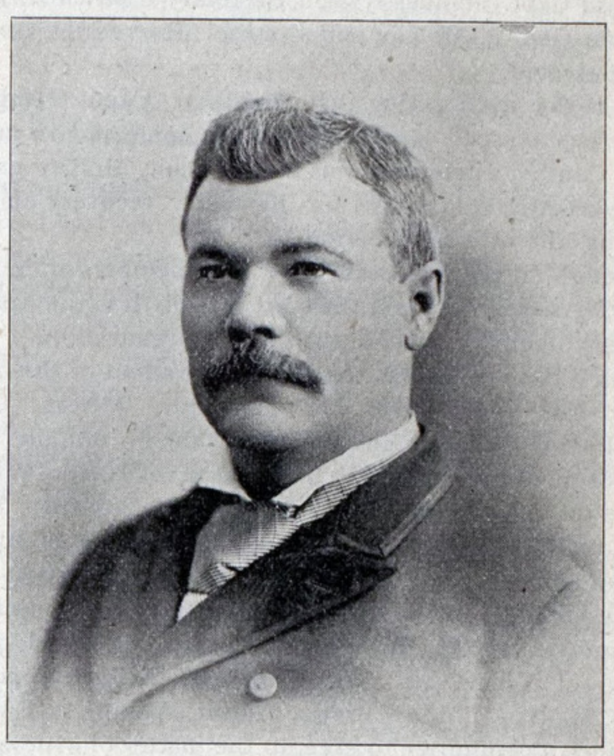
M. A. BRADLEY.
1892-3.



WILLIAM LIVINGSTONE.
1895-6.

JAMES S. DUNHAM.
1898-9.

1892-9.



JAMES CORRIGAN.
1894-5.

JAMES W. MILLEN.
1897-8.

ANNUAL MEETING OF THE LAKE CARRIERS' ASSOCIATION.

The eighth annual meeting of the Lake Carriers' Association was called to order in the Russell House, Detroit, on Tuesday, January 24, at 10 a. m.

The first order of the convention was to present to H. D. Goulder, Esq., counsel for the association, a handsome clock purchased in France, and at one time the property of the first Napoleon, and Mr. Livingstone, in making the presentation speech, fairly outdid himself and called forth great enthusiasm from all present. Mr. Goulder replied in his usual able manner and the meeting was then formally opened by Secretary Charles H. Keep reading the annual report of the board of managers. Mr. H. Coulby, of Cleveland, then nominated Frank J. Firth, of Philadelphia, who is manager of the Anchor Line, for president. He was unanimously elected. Mr. Firth was unable to attend the meeting and he was notified of his election by wire. On motion of Capt. Thomas Wilson, Secretary Charles H. Keep, Treasurer Geo. P. McKay and Counsel Harvey D. Goulder were re-elected.

This is the first meeting that Treasurer Capt. George P. McKay has missed. He was sick at his home and on motion of Mr. Coulby, a telegram was sent to Capt. McKay expressing sympathy and hope for his early recovery and also notifying him of his re-election.

Although all the line boats have been members of the Lake Carriers' Association from the start Mr. Firth is the first line manager to be at the head of the present organization. Capt. Thomas Wilson, who was the second president of the organization, was elected first vice president, Messrs. C. W. Elphicke, of Chicago, Edward Maytham, of Buffalo, W. C. Richardson, of Cleveland, W. S. Brainard, of Toledo, William Livingston, of Detroit, Ben Boutelle, of Bay City, W. H. Meyer, of Milwaukee, and Alexander McDougall, of Duluth, were appointed a committee to select the balance of the vice presidents, board of managers, and standing committees.

On motion of Mr. Wolvin, of Duluth, seconded by Mr. Coulby, of Cleveland, Vice President Wilson appointed Messrs. Wolvin, Coulby, Braun, Colton, Waldo, D. Sullivan and Vance a committee to take up the matter of a new grain bill of lading and to meet with the Chicago and Duluth elevator men who were present.

After some discussion the dues of the association were fixed the same as last year. They are 3 cents a ton on vessels of 1,200 tons or over and 2 cents a ton on boats under 1,200 tons.

The nominating committee reported and very few changes were made in the make up of the board of managers and committees. The president and first vice president were made ex-officio members of all the standing committees. The chairmen of the different committees are the same as they were last year.

The next matter taken up was the question of grain shoveling at the different receiving ports. Contractor W. J. Connors, of Buffalo, who had the contract at that port last year, wanted to discuss the question in meeting, but on a motion of J. S. Dunham, of Chicago, the matter was referred to a committee of eight. Vice President Wilson appointed the committee as follows: James Corrigan, Cleveland; Edward Gaskins, W. H. Gratwick, Buffalo; Capt. J. W. Millen, Detroit; W. H. Meyer, Milwaukee; and Alexander McDougall, Duluth.

First Vice-President Capt. Thomas Wilson called the afternoon session to order. The committees considering the revised shipping bill and the grain shoveling contract were not ready to report, so the time of the session was devoted to discussing several questions of interest to the association.

Capt. Wilson said that he thought it would be best to have separate committees on unloading and trimming, and committees for everything outside of grain and ore, especially lumber. Capt. Calbick, of Chicago, was selected as the chairman of the committee to look after the lumber carriers.

It was decided that the matter of lights in St. Mary's river should be called to the attention of the committee on aids to navigation and that the government should provide for the maintenance of such lights instead of leaving the enterprise in private hands.

Capt. John Corrigan suggested that it would be advisable to establish a telephone line between Detroit and the Lime-Kiln crossing, and employ men to warn vessel masters of the state of the water at the crossing, as many vessels got into trouble on account of lack of information on that point. The suggestion was referred to the committee on aids to navigation.

It developed that there was a movement on foot looking towards the protection of the interests of the lumber carriers by the Lake Carriers' Association.

"The lumber carriers formed themselves into an association last spring," said ex-President J. S. Dunham, "and they made a failure of that association by taking up the the question of freights, which this association has never done. Now, I think there are worse abuses in the question of loading and unloading lumber vessels than there is with our grain question at Buffalo.

"It is almost impossible for lumber vessels to make money as things were last year. It is unsafe to take a load of lumber unless you know what it is, where it lies and when you are to get it. Vessels were laid up at Lake Superior docks for two weeks at a stretch last season. This fall a number of vessel owners asked me if I thought the Lake Carriers' would take up the question with them. They believed that if the Lake Carriers' would do so a majority of the lumber vessel owners would join the association for that purpose, if for no other. That is the reason that the question has been brought before the association.

"I cannot see any good reason why we cannot take up the lumber question as well as the ore question, and I hope that when the chairman selects his committee he will get the right kind of men. It does seem to me that they should be owners of lumber carriers, whether they are members of this association or not, because they will be taken in within the course of the year. They are interested with us, and I would say that most of them intend to join this association.

"The idea is to reach the lumber tows, steamers and their consorts, and I think that lower lake men, Port Huron men and Duluth men would be the proper persons to put on the committee."

With the report of the grain committe, the meeting adjourned until Wednesday, 10 a. m.

The opening session on Wednesday was also well attended the committees appointed on Tuesday on the grain bill of lading and grain shoveling contract were not ready to report, and it was nearly noon when Vice-President Wilson called the meeting to order. The committee on grain shoveling was the first to submit a report, as follows:

"W. J. Conners, of Buffalo, submitted a bid of $3.10 per 1,000 bushels, the same rate as last year, and agreed to give bond. He appeared before the committee and stated that his bid was on the basis of $1.20 for steam shovels and $1.90 for labor and supervision. No other bids were received. In the further discussion Mr. Conners agreed that the vessels should have the benefit of any reduction in the price of steam shovels that can be obtained by negotiation with the elevator owners.

"The committee considers that Mr. Conners' bid, so far as labor and supervision are concerned, is a fair one. The committee further considers that as the committee invited bids at the meeting it would be unfair to the only bidder to permit others to hand in bids hereafter. They therefore recommend that Mr. Conners have the shoveling at Buffalo for 1899, but that before the actual agreement be executed negotiation should be taken up with the owners of steam shovels to see whether some reduction in price can be obtained. They recommended that a committee of the association be appointed to take up the negotiation and before the opening of navigation close its contract on best terms possible. Such committee to report to the executive committee at Cleveland."

The report of the committee was adopted.

When the question of unloading ore and lumber was taken up Vice President Wilson said that they were very important matters, and that strong committees should be appointed to take charge of them. An effort will be made this season to have all ore carriers unload under the continuous system, as the work is done at South Chicago. L. M. Bowers was appointed chairman of the committee, the other members to be selected by the vice president and the chairman of the committee.

James A. Calbick was appointed chairman of the committee on unloading lumber. Mr. Bowers would not act as chairman of the committee on unloading ore, but agreed to work with the other members.

H. A. Hawgood was named in his place. The other members of the committee are: L. M. Bowers, R. R. Rhodes, W. C. Richardson, W. S. Dunham, W. E. Fitzgerald, P. P. Miller, W. Livingstone, H. L. Shaw, W. S. Brainard, F. N. La Salle, J. W. McBrier and John Mitchell.

The committee to investigate and adjust the grievances in connection with the lumber carrying trade is as follows: J. A Calbick, Alfred Mitchell, C. A. Chamberlain, Edward Smith, P. M. Shaw, Jr.; T. F. Madden, Louis McCormick, Alvin Neal.

The chairmen of the lumber and ore committees will report to the executive committee at Cleveland.

The members of the grain bill of lading committee were in session all day and when they agreed on a bill of lading the association went into executive session. The chairman of the committee said that the new bill of lading was not in shape to be given to the public. He stated that the sentiment of the Lake Carriers' Association is strong and clear and that on the question of shortages and detention there must be a change, that the valuable vessels representing so much capital interested cannot be detained, as in the past, for the mere convenience of any one, and that there is no reason why a vessel owner should be called upon to pay for grain that was never put on his vessel. The meeting formulated a method of reform from the vessel standpoint and placed the matter in the hands of a strong committee, of which L. C. Waldo, of Detroit, is chairman, with instructions to confer with the grain interests and arrange to correct the abuses which exist in the trade with the co-operation of the grain interests, if possible. The other members of the committee are: Capt. J. J. H. Brown, Buffalo; H. Coulby, Cleveland; A. W. Coulton, Toledo; D. Sullivan, Chicago; David Vance, Milwaukee; A. B. Wolvin, Duluth.

Secretary Keep stated that he has been assured by the officials at Washington that the private lights in the "Soo" river will be replaced by gas buoys early this season. He suggested that the committee on aids to navigation be instructed to provide for the maintenance of the private lights until the government is ready to take care of them, and such action was taken.

The next annual meeting of the association will be held at Detroit the third Wednesday in January. At the banquet which was given at the Russell House, Harvey D. Goulder was toastmaster.

Capt. John Mitchell, of Cleveland, William Livingstone, of Detroit, and C. H. Keep, of Buffalo, were appointed a committee to arrange for annual banquets and entertainments.

THE PARRY SOUND ROUTE.

The Canada Atlantic Transit Company, the new route to Montreal via Parry Sound, which carried so much export grain from Chicago and Duluth last season, are organizing a new barge line in connection with their Coteau Landing Transfer, and are building in connection with the same floating elevators to transfer the grain at Montreal. They are also negotiating for the purchase or construction of two large sized Canadian bottoms for the carriage of Manitoba grain from Fort William and Duluth via Parry Sound. These boats will have first-class passenger accommodation and will be modern in every respect, and combine speed with their carrying capacity.

EASTERN SHIPBUILDING—NEW WORK.

A new steel steamer to run between Haverstraw, Sing Sing, Rockland Lake and Nyack the coming summer is the project to be carried out by Capt. Fred S. Jenks, of Sing Sing. The new steamer will be built at the yards of Marvel & Co., Newburg.

An order has been received at Roach's shipyard, Chester, Pa., from the Portland S. S. Co. for a steel steamer 320 feet long.

The Piscataqua Navigation Co. has contracted with Chas. Wood, of Kennebuckport, N. H., for a new barge to be 100 feet long, to be completed by May 1st.

James & Tarr, Ipswich, Mass., have contracted to build a vessel for the T. Wharf Fish Co.

Carter & Co., Belfast, Me., have made a contract with E. A. Wentworth, of Camden, to go to Virginia and get out a large vessel frame. The frame is to be of white oak, and to be delivered in March.

Messrs. Carter & Co. will also build a 600-ton vessel for the Pendletons, of Islesboro.

Samuel C. Wicks & Co., Brooklyn, N. Y., have taken the contracts for three racing boats for Willard Fisher, of New York City. They will consist of a 40-foot yawl rigged yacht; a 31-foot knockabout for Harold Wesson, of Springfield, Mass., and a small catboat for Geo. E. Vogoroux, of Stamford, Conn.

This is not what might be termed exclusively a marine item, nor do we suppose it is, but it goes: "A man out in Omaha bought a bedstead over in Lincoln and the wood was so green that one warm spring day it broke out all over with buds and in a week was covered all over with little groves of waving branches. In the autumn the children picked the hickory nuts from the side pieces and the next spring tapped the head board for maple syrup.

MARINE TREASURY DECISIONS.

MEASUREMENT OF VESSELS.

Vessels should not be admeasured from the under side of the deck plank to the outside planking of the hull in ascertaining tonnage.

TREASURY DEPARTMENT,
BUREAU OF NAVIGATION,
WASHINGTON, D. C., January 12th, 1899.

SIR:—This office is in receipt of your letter, dated the 10th instant, reporting upon an application by Mr. M. Sicken, owner of the schooner Teutonia, for a readmeasurement of the vessel. She was built at Marine City in 1881, and it appears from your report that the depth of hold reported was obtained by measuring from the under side of the deck plank to the outside planking of the hull. Such admeasurement being erroneous, you are authorized to make such readmeasurement as may be necessary, and to insert the correct figures in new enrollment and license.

Please advise Mr. Sicken of your action.

Respectfully yours, E. T. CHAMBERLAIN,
Commissoner.

Collector of Customs, Port Huron, Mich.

BOAT-DISENGAGING APPARATUS.

Local inspectors of steam vessels not required to pass upon boat-disengaging apparatus except when in actual use on a passenger steamer.

TREASURY DEPARTMENT,
January 11th, 1899.

SIR:—The Department is in receipt of your letter of the 9th inst., inclosing a copy of a letter received by you from Mr. J. W. Shackford, marine superintendent, International Navigation Company, in which Mr. Shackford quotes the local inspectors at New York as having advised him "that they have no record of the Standard automatic releasing hook having been passed by the Board of Supervising Inspectors," and again, "It is necessary to have the Standard automatic releasing hook approved by the Board of Supervising Inspectors before it can be used on the boats of passenger steamers."

Referring to the matter above quoted in your letter, you ask to be informed "if the detaching device that is now in use on the steamers of this line (International Navigation Co.) has received the approval of the Board of Supervising Inspectors of Steam Vessels as a detaching device; if so, when was it approved?" and you further ask, "Can the Standard automatic releasing hook be applied to the boats of passenger steamers without the approval of the Board of Supervising Inspectors?"

In reply to your first question, the department has to inform you that it has no special information on the subject.

To your second inquiry, you are informed that, in the absence of approval by the Board of Supervising Inspectors of any special device for unhocking boats from the falls when being launched from a passenger steamer, it is discretionary with the local inspectors to decide upon the applicability of any device they may find in use upon any steamer they may be called upon to inspect, and to pass the same, if they deem it suitable, without regard to any specific name or title by which such devices may be known or called by their makers; but the inspectors are not authorized to pass upon such devices except when found in use on the steamers they are inspecting.

If the inspectors should find in use, on any steamer they are called upon to inspect, the detaching hooks manufactured by the company of which you are the manager, and should refuse to pass the same, you are entitled under the law (Sec. 4452, Rev. Stat.) to an appeal to the supervising inspector of the district, whose decision in the case would be final. Respectfully yours, O. L. SPAULDING,
Acting Sec'y.

MR. JAMES R. RAYMOND, New York, N. Y.

IN WINTER QUARTERS AT CLEVELAND.

STEAMERS: City of Genoa, W. P. Thew, William F. Sauber, Columbia, Crescent City, William Edwards, A. Y. Gowen, Abercorn, Ohio, George Stone, Business, John B. Lyon, Badger State, Empire State, V. Swain, Quito, Sarah E. Sheldon, John B. Ketcham, Harvey J. Kendall, James Prentice, H. D. Coffinberry, Nellie Torrent, Edward S. Pease, Kaliyuga, Rhoda Emily, Superior, Duluth, Argo, W. L. Wetmore, William Chisholm, J. H. Devereux, J. H. Wade, Fred Kelley, W. D. Reese, E. C. Pope, Choctaw, Kearsarge, Burroughs, Hiawatha, C. W. Elphicke, George Spencer, Margaret Olwill, Oregon, Alfred Wright, Frontenac, Cadillac, La Salle, Specular, Andaste, Pioneer, R. E. Schuck, Continental, Marina, Manola, Pasadena, Castalia, Masaba, Mark Hopkins, Samuel Mitchell, H. S. Pickands, Chauncy Hulburt, Italia, Veronica, Mary A. McGregor, H. B. Tuttle, George T. Hope, Wawatam, City of Glasgow, Globe, Hesper, Gladstone, S. Neff, Coralia, Hendrick S. Holden, Alcona, Yakima, T. H. Ketchum, John Ericcson, Sitka, Robert Fulton, Olympia, Siberia.

SCHOONERS AND BARGES: Conrad Reid, Rival, Typo, Selkirk, Go den Age, Alice M. Beers, Morning Star, Sam Flint, Thomas Gawn, Teutonia, Middlesex, Planett, Mineral State, Fontana, H. J. Webb, Mautenee, Brunette, De Los De Wolf, L. W. Drake, Montpelier, Canton, Nelson Bloom, Arenac, W. K. Moore, Negaunee, Gen. Franz Seigel, D. Z. Norton, Mt. Blanc, George B. Owen, Magnetic, 127, Grace Holland, Sandusky, D. P. Rhodes, Aita, James Nasmyth, H. P. Baldwin, Huron, B. L. Pennington.

H. D. GOULDER.

It has been our pleasure to publish lots of complimentary articles regarding marine men, furthermore, the RECORD will so continue to do. In this instance we re-produce a picture of H. D. Goulder, Esq., counsel of the Lake Carriers' Association, and without doubt the most deservedly popular man on the chain of lakes.

Mr. Goulder is the worthy son of a sailor sire, one who adorned the profession by his singular ability and skill, therefore Harvey, as he is familiarly called, "is to the manor born," a sailor from the ground up; consequently, one of God's noblemen, and, incidentally, so far as known, an able admiralty lawyer, at least his record modestly calls for such a recognition at our hands.

H. D. GOULDER, ESQ.

It is not our province or desire to be too fulsome in the use of words in speaking about Mr. Goulder, but, we may say, that there is only one of his caliber on the lakes, and, perhaps, it would be quite difficult to meet with his equal; this, we think, will be generally endorsed by our readers, and voiced by the marine community of the lakes; hence, we take pleasure in launching his picture.

BUFFALO GRAIN SHOVELER'S RESOLUTIONS.

At the last regular meeting of Local 51 I. L. A., Buffalo, N. Y., the following resolutions were adopted:

Whereas, The grain shoveling season of 1898 having closed, and

Whereas, It has been a season of entire satisfaction to the members of Local 51, owing to the untiring efforts on the part of the Contractor W. J. Connors, in behalf of the members of our association, therefore be it

Resolved, That we tender our sincere thanks to Mr. Connors for the deep interest taken in our affairs during the past season, and be it further

Resolved, That a copy of these resolutions be spread upon our minutes, a copy sent to Mr. Connors and the same published in the MARINE RECORD and the daily press.

C. F. Coughlin, president; E Hartnett, vice president; B. Connor, financial secretary; H. Shannahan, recording secretary; D. J. Nngent, treasury; C. Leary, J. Lynch, E. Hurley, T. Hayes, J. O'Connor, J. Boland, M. Lisk, John Buchanan, M. Murray, committee.

SHIPPING AND MARINE JUDICIAL DECISIO S.

Towage—Insufficiency of Hawser.—Tugs engaged in towing a dock at sea cannot be held liable for its loss during a storm, on the ground of the insufficient strength of the hawser used, where it appears the loss is in no way attributable thereto. The E. V. McCaulley. 90 Fed. Rep. 510.

Contract of Ferriage.—In a contract for ferriage, safe transportation is not merely an incident of the contract, but it is its very direct object. When the obligor fails to perform that obligation, the obligee is entitled to damages, just as the obligee is entitled to damages for inexecution of any other contract, unless the obligor can offer just and legal reason for non-execution. Patton vs. Pickles, 24 So. Rep. (La.) 290.

Towage—Reliance on Weather Signals.—The captains of tugs who remained in harbor with their tow during a storm lasting several days, were not negligent in relying on the government weather signals, and putting to sea after the storm had abated and the signals had been changed to indicate fair weather and favorable winds, merely because the wind had "backed around" from the northeast to west of north. The Ivanhoe, 90 Fed. Rep. 510.

Liens on Vessels Engaged in Interstate or Foreign Commerce.—Local statutes subjecting vessels to liens for debts contracted in equipping and fitting them for service are not regarded as amendments of the general maritime law, and, in the absence of legislation by Congress establishing an uniform rule, are upheld as applied to vessels engaged in interstate or foreign commerce, and owned in other states, as being in aid of commerce, by enabling such vessels to obtain credit for necessaries when away from their home port. The Del Norte, 90 Fed. Rep. 506.

Injury to Passenger.—Where a person, having paid for a ticket for ferriage, has, on invitation of the employes of the ferry company, passed out upon an iron bridge leading to the ferryboat, and, while standing thereon, it broke, precipitating her into the river, it is not for the passenger to prove that the breaking was due to the negligence of the company, but upon the company to establish affirmatively a state of facts which would release it from responsibility. Patton vs. Pickles, 24 So. Rep. (La.) 290.

Master and Servant—Death of Seaman.—A steamer was tied up in the winter, and, after the fires under the boiler had been put out, the captain's crew, including the watchmen, left the ship; the others remaining on board to prepare her for the winter. The only fire on board was in a pony engine used for heating the cabins, and in kerosene lamps used to furnish light. During the night the ship took fire, and one of the engineer's crew was killed. Held, that the owners were not negligent in not keeping a watchman on board. Lang vs. H. W. Williams Transp. Line, 77 N. W. Rep. (Mich.) 633.

Maritime Liens.—The effect of the statute of Washington (2 Ballinger's Ann. Codes & St. § 5953; 1 Hill's Code, § 1678) which makes every contractor, subcontractor, builder, or person having charge in whole or in part of the construction, alteration, repair, or equipment of a vessel, an agent of the owner for the purpose of contracting debts on the credit of the vessel, is to relieve persons who extend credit for work done or material furnished in that state for the alteration, repair, or equipment of a vessel, at the instance of a charterer having possession, from the necessity of making inquiry as to the authority given by the charter party; and, unless they have actual knowledge of its provisions, their right to hold the vessel liable is not affected thereby. The Del Norte, 90 Fed. Rep. 506.

Assumption of Risk—Watchmen.—After a steamer had been tied up for the winter, the captain's crew, consisting of 6 out of the 16 members of the crew, and including the watchman, was discharged; the cabin and engineer's crews remaining on board to prepare her for the winter. During the night she took fire, and a member of the engineer's crew was killed It was not shown that deceased knew that the captain's crew had left, but they had all lived in a common room, and the rest of the crew knew it, and the engineers had been told of it, and the ship left in their charge. Deceased was an experienced sailor, and had charge of the pony engine, which was the only one on the ship containing fire, and knew that the ship was lighted by kerosene lamps. Held, that he assumed the risk of staying aboard without watchmen. Lang vs. H. W. Williams Transp. Line, 77 N. W. Rep. (Mich.) 633.

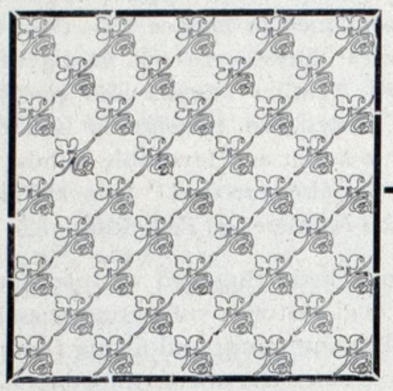
VESSELS CLASSED.

Vessels classed and rated by the American Bureau of Shipping in the "Record of American and Foreign Shipping" this week are as follows: American screw, Havana, owned by James E. Ward & Co.; screw, Santiago de Cuba, owned by Zaldo & Co.; American schooner, John B. Prescott; American barge, Ajax.

BRAMHALL, DUPARQUET CO.

BRAMHALL, DEANE & CO. AND DUPARQUET, HUOT & MONEUSE CO. OF CHICAGO.
INCORPORATED.

GEO. G. BROOKS, President. H. HEMINGWAY, Treasurer.



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A LACK OF WOMANLINESS.

The Times, Leavenworth, Kan., says: "One corporal on board the ship carrying the Kansas volunteers to Manila was severely disciplined because he was accused by the wife of an officer of looking in her cabin window, although he strenuously denied having committed the offense. But the troubles caused by women on a troopship did not end here. It seems that a shower bath had been rigged up on the bow of the Indiana and the soldier boys had been allowed to disrobe, and while standing under the big shower bath arrangement, the pumps from the engines would send great streams of cool sea water over them. It happened that a view of the shower bath and the soldier boys enjoying its cooling streams, clad only in nature's garments and their smiling countenances, could be had from one of the windows of the cabin occupied by the wife of the chaplain. Horrors! The good lady was shocked and the luxury of the shower bath must be done away with. Upon the good woman's complaint the order was accordingly issued. This is why the boys of the 20th Kansas are opposed to any more women on troop ships."

To which the Army and Navy Journal very pertinently adds: "If a soldier was disciplined for following the example of King David in the case of Bathsheba's wife, why should not the wife of the chaplain have been subjected to a reproof for disturbing the men at their ablutions by looking out of her cabin window, when she should have turned her gaze elsewhere? Women who are not discreet enough to avoid an unpleasant assertion of their sex when they travel on vessels carrying soldiers would do well to seek some other means of conveyance."

As a matter of actual experience it may safely be asserted that 99 out of every 100 women find themselves out of place on shipboard, or if they don't, every one else realizes it, a feature which goes to prove that the pestiferous chronic feminine crank is a pest under the circumstances. An old traveler by water, that is, the veritable flatfoot, who neither goes to sea for pleasure, pastime, nor to wear his old clothes out, will often back out of a merchant ship when he finds out there is a woman on board—the exceptional case, O yes! all hands, every man jack, would unquestionably go to hades and half-way back again, in compliance with a twinkle from her eyelid.

NEW TONNAGE NOW UNDER CONTRACT AND CONSTRUCTION AT U. S. LAKE PORTS.

TYPE.	Builders.	Dimensions. Keel.	Beam.	Depth.	Owners.
Steel Barge	American Steel Barge Co., W. Superior, Wis.	446	50	29½	Bessemer Steamship Co.
Tanker	American Steel Barge Co., W. Superior, Wis.	200	38	17	Standard Oil Co.
Pass. Str.	Chicago Ship Building Co., Chicago, Ill	225	40	16	Northern Michigan Transportation Co.
Cargo Str.	Chicago Ship Building Co., Chicago, Ill	430	50	28½	Minnesota Steamship Co.
Tow Barge	Chicago Ship Building Co., Chicago, Ill	436	50	28½	Minnesota Steamship Co.
Cargo Str.	Cleveland Ship Building Co.....	444	50	29	Wilson Transit Co.
Cargo Str.	Cleveland Ship Building Co.....	432	50	28	A. B. Wolvin et al.
Cargo Str.	Cleveland Ship Building Co.....	238	42	26½	W. A. Hawgood et al.
Cargo Str.	Cleveland Ship Building Co.....	432	50	28	A. B. Wolvin et al.
Cargo Str.	Craig Ship Building Co.....	250	42	24	Builder's Account
Pass. Str.	Detroit Dry Dock Co.....	190	25	12½	E. H. McFall.
Steel Tug	Detroit Dry Dock Co.....	85	19½	11	Capt. Taylor, U. S. A.
Cargo Str.	Detroit Dry Dock Co.....	435	50	28	.....
Cargo Str.	Detroit Dry Dock Co.....	435	50	28	.....
Wood Sch.	Davidson, James.....	325	45½	26	Builder's Account
Wood Sch.	Davidson, James.....	325	45½	26	Builder's Account
Cargo Str.	Globe Iron Works Co.....	455	50	29	Bessemer Steamship Co.
Cargo Str.	Globe Iron Works Co.....	410	50	28	John Mitchell et al
Cargo Str.	Globe Iron Works Co.....	416	50	28	Cleveland Steamship Co.
Wood Tug	Heath, E. W.....	90	.....	.....	Milwaukee Tug Boat Co.
Yacht	Heath, E. W.....	.....	.....	.....	J. H. Brough
Dredge	Hingston & Woods.....	136	42½	13½	Builder's Account
Cargo Str.	Jenks Ship Building Co.....	240	43	27	Builder's Account
Tug	Johnson Bros.....	.....	.....	.....	Verduin Bros.
Tug	McKinnon Iron Works.....	32	8	.....	.....
Cargo Str.	Union Dry Dock Co.....	402½	52	28	Western Transit Co.
Tow Barge	Union Dry Dock Co.....	350	.....	.....	.....

CANADIAN TONNAGE UNDER CONSTRUCTION.

Tug	Bertram Engine Works.....	80	16	7	Collins' Inlet Rubber Co.
Pass. Str.	Bertram Engine Works.....	85	16	5½	Capt. Reynolds
Cargo Str.	Calvin Co.....	212	37	15	Calvin Co
Pass. Str.	Simpson, M.....	100	21	7	Ottawa River Navigation Co.

THE attention of our readers is called to a notable departure from the stereotyped forms of most advertisments, which will be noticed in the full page advertisement of the Penberthy Injector Co. found on page 4 of this issue. This Company has always been noted for its extensive and original advertising, but the idea embodied in the present full page notice is certainly unique and worthy of special remarks. The "Penberthy" automatic injector manufactured by them is well and favorably known to all marine engineers, being universally recognized as one of the most satisfactory injectors on the market for marine service.

COMMODORE PHILIP HICHBORN, U. S. N.

Commodore Philip Hichborn was born at Charlestown in 1839, and graduated from the Boston High School in 1855. He then entered French's Mercantile College and graduated from it in 1859. At the age of fifteen he acted as assistant secretary to Admiral T. H. Gregory, the commander of the Boston navy yard, and a year later he was indentured to the government as shipwright apprentice. During his apprenticeship of five years he successfully mastered every detail of the shipwright's trade, so that he has a knowledge of not only the modern, but the old system of shipbuilding. In recognition of his merit, Secretary Toucey ordered that he should receive a course of theoretical training, and he made remarkable progress in ship designing and calculations in another two years' course of theoretical training under Prof. Molle. In 1861 Mr. Hichborn obtained a position as carpenter of the clipper ship "Dashing Wave," bound for San Francisco. The voyage was a tedious and tempestous one of some one hundred and fifty days. The third mate became ill, and Mr. Hichborn was required to act in his place, and he performed the duties of that office with remarkable success. Upon arriving in San Francisco he worked for the Pacific Mail Company and the California Steam Navigation Company, and then once more entered into the employ of the government at Mare Island. He had various positions at this yard, and in 1862 was appointed master shipwright, which was a very responsible position for a man twenty-three years of age, for he had at times the direction of over one thousand men. Two years later he declined the position of Assistant Naval Constructor, but in 1869 he made application for appointment, and in May of the same year, after passing a severe examination, he was appointed as Assistant Naval Constructor, U. S. N., with the relative rank of lieutenant. The training Mr. Hichborn had received in the yard and drawing office made the performance of his new duties comparatively easy. In 1870 he was sent to Portsmouth, N. H. A farewell ball and procession were given in his honor at Vallejo before he left. At Portsmouth Mr. Hichborn passed years of fruitful experience in building and repairing vessels. In 1875 he received his commission as Naval Constructor, having passed a competitive examination at the navy yard, in which he succeeded in distancing all his competitors. In December, 1875, he reported for duty at Portsmouth navy yard. At this time the yard was being abandoned and the machinery stored and prepared to be transported to the new yard at League Island. A large share of this important work devolved upon Mr. Hichborn. He was always a strong advocate of the natural advantages of the island as a steel shipbuilding yard for the navy, and during the nine years he was on duty there he did all in his power to put it in condition for government work. He completed and repaired a large number of vessels at this yard.

COM. PHILIP HICHBORN, U. S. N., CHIEF CONSTRUCTOR.

In 1880 he was selected as a member of the first Advisory Board, from the organization of which was given the first impulse to naval reconstruction. In addition to his regular duties at the yard, he had charge of the completion of the "Terror" and "Amphitrite" and superintended the launching of these vessels. In 1884 he was selected by the Secretary of the Navy for special duty in Europe, and, in accordance with orders of the department, made a tour of the dockyards of Europe, and upon his return he submitted a valuable report to the department, which is considered a standard work upon the subject. In November of the same year Mr. Hichborn was ordered to the Navy Department at Washington as assistant to Chief of the Bureau of Construction and Repair, and also as Naval Constructor at the navy yard, Washington. He was also a member of the Board of Inspection and Survey. The duties of these very responsible positions, which he performed simultaneously, were rather trying. but his professional knowledge, sound judgment, and executive ability enabled him to perform the duty of these offices with great satisfaction to the department. Since his appointment as a member of the Advisory Board, in 1881, he has been prominently associated with matters affecting designing and construction of our new naval vessels. Mr. Hichborn was appointed Chief of the Bureau of Construction and Repair in September, 1893, and he now holds the relative rank of Commodore while he occupies this office. His position is comparable with that of Chief of Naval Construction in England. He was reappointed for a second term on September 7, 1897. He re-designed the armor-clad "Terror," converting her from a single turret monitor of doubtful utility into a double barbette turreted coast defense vessel of a formidable type. These highly efficient barbette turrets were unanimously approved by the board of the Bureau Chiefs and have since been adopted for the "Amphitrite" and "Monadnock" and other vessels. Mr. Hichborn is a member of a number of societies devoted to the interest of shipbuilding, and he has devoted much time to literary work, chiefly upon subjects of a professional nature. His advocacy of sheathed ships is gaining in favor among men in the navy. He has also given great attention to life saving apparatus. His practical and inventive genius has contributed many valuable improvements in shipbuilding, such as the utilization of steel bitts as ventilators. In conclusion, it may be said that professionally Mr. Hichborn is always kind and sympathetic in his treatment of his subordinates and is ever ready to recognize their merit. He is a thorough master of his profession, and has won the respect and confidence of his men, and, without requesting it, he has at all times received the full measure of praise from the various Secretaries of the Navy as the result of his excellent management and executive ability. The good work accomplished by the Bureaus of Yards and Docks, Equipment, Navigation, Arms, Construction and Repair, and Steam Engineering will ever remain one of the most pleasing and satisfactory remembrances of the Spanish-American war.

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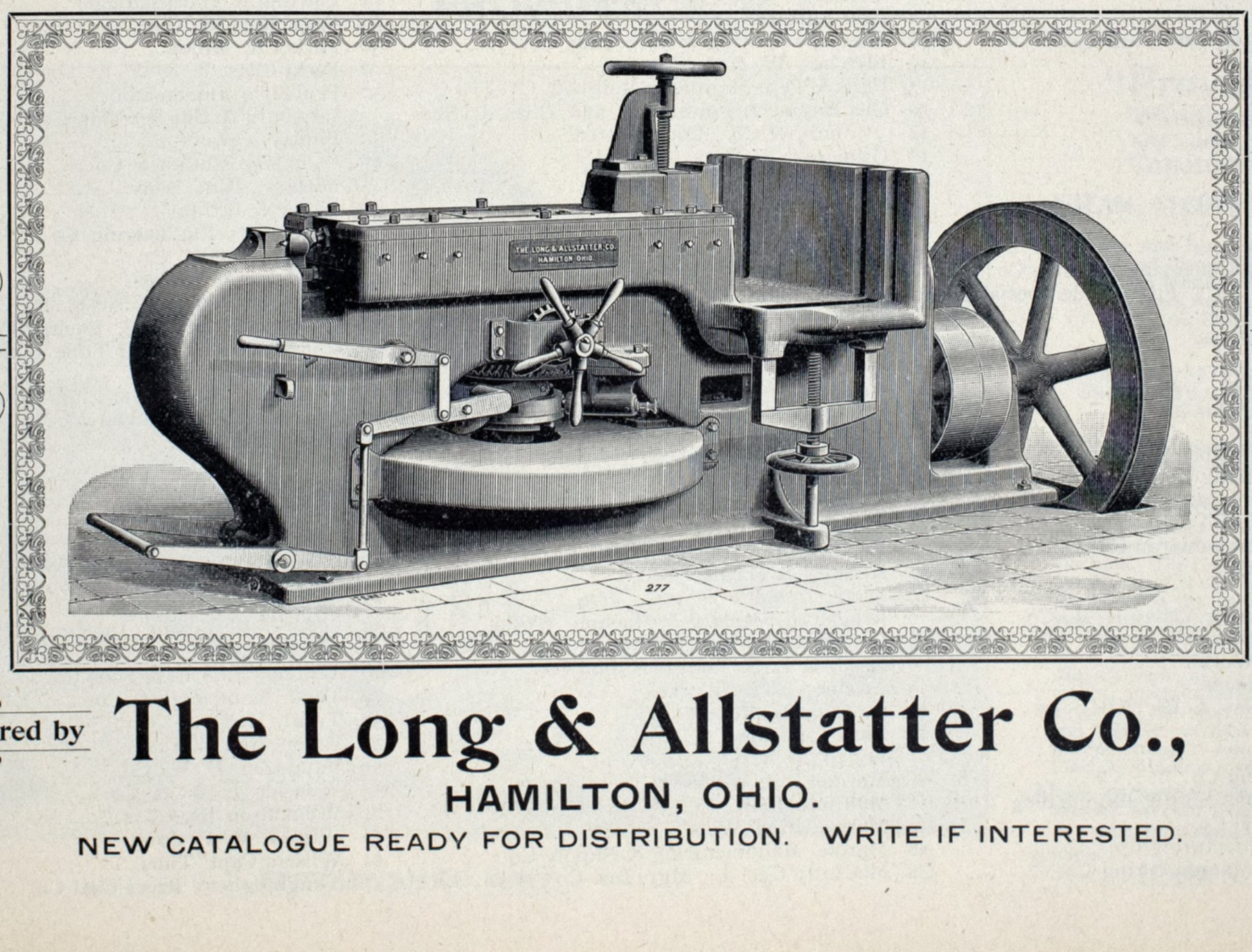
POWER

PUNCHING AND SHEARING MACHINERY

FOR ALL KINDS OF WORK.



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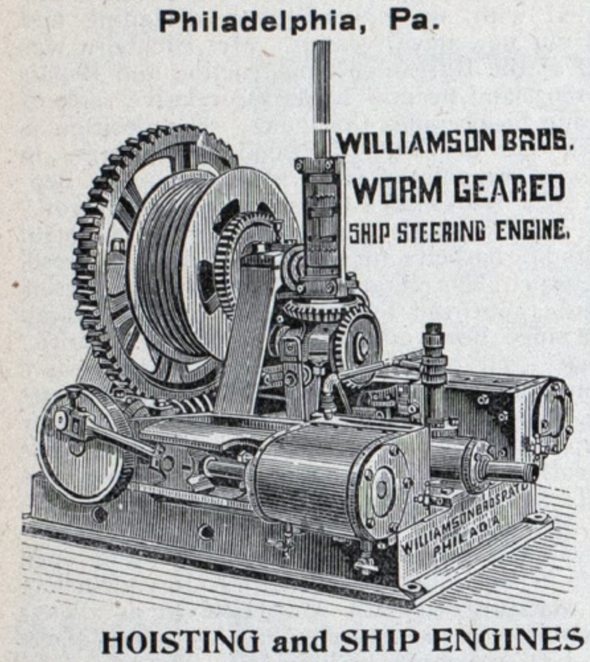

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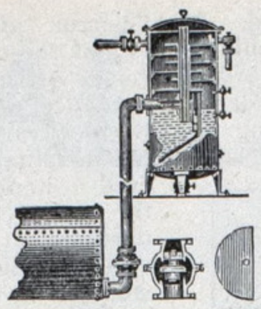
With either Fractional, Spur or Worm Gear of Various Patterns to Suit all Purposes.



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Made in all Sizes and to Suit all Conditions.
ROBERT LEARMONTH,
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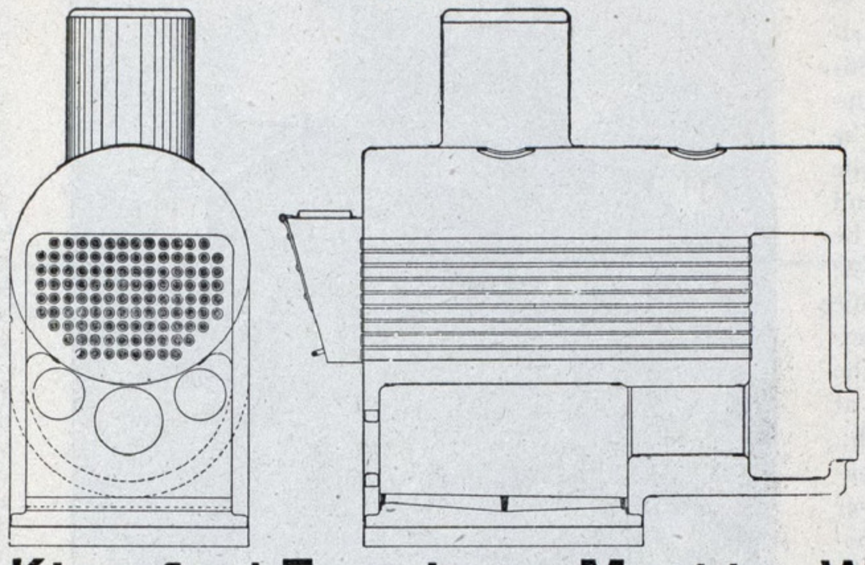

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OSWEGO, N. Y.

They are economical and occupy but little space.
They give perfect satisfaction.
They are easily kept clean, and the crown sheet being cylindrical in form requires no bracing.

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Our knowledge of river navigation is earned through long experience and exceptional opportunity. We design and build the *entire and complete* outfits of driving machinery for powerful light draft vessels, having the best of modern shop facilities to aid us in doing *all* the work. Write to us before you act.

MARINE IRON WORKS
Station A. CHICAGO.

Compasses Adjusted
For deviation, and deviation tables supplied. Great facilities for doing the work by day or night.

John Maurice.
Office, 24-26 Market St., CHICAGO.

ALPHABETICAL INDEX OF ADVERTISING.

RUSSIA WILL MAKE ARMOR PLATE.

The production of armor plates suitable for battleships of the largest type will, in a few months, be included among the home industries of Russia. This result will be entirely due to the rebuilding of the Ishora Shipyard and engineering Works. The establishment is being reorganized on the model of Krupp's works at Essen. Three large furnaces have been built for the production of cast steel, and a special additional set of workshops has been erected for making drawn tubing and weldless tubes for water tube boilers. A department has been constructed for the preparation of steel by the Siemens-Martin process, with special workshopa for forging shapes, cranks, stems, and other heavy pieces of shaped material required for the construction of huge warships of modern type. An additional range of workshops is being erected to be devoted to the manufacture of the largest size of armor plates. The equipment will be complete, and electricity will be used throughout as the motive power for all the machinery. Coal will not be used as fuel, but naphtha and naphtha refuse will take its place for raising steam.

LAKE MAIL CONTRACT.

The Federal goverment has let a contract to the Crosby Transportation Co. beginniug July 1 to continue until Oct. 31, 1903, for the carrying of mail between Milwaukee, Wis. and Grand Haven, Mich. The months during which the mail will be carried are from May 1 to Oct. 31 each year, one month longer than has been the custom. The price paid is $10 a round trip and a bond of $6,000 is required.

MARINE ENGINEERING says: "The selection of Engineer in-Chief George W. Melville, U. S. N., for the presidency of the American Society of Mechanical Engineers, is a source of great satisfaction to the marine engineering fraternity throughout the country, both naval and mercantile. His grand qualities as a man, his genius as an engineer, and his record as a naval officer are known wherever ships are known, and there is no gift in the profession or out of it that he could not have by vote of the marine engineers of America." If the marine engineers wish to do what will please the Engineer-in-Chief, they will fit out an Arctic expedition and give him command of it. He never will be supremely happy until he can hoist the American flag to the top of the North Pole.

THE CUSTODIAN OF SAND BEACH HARBOR.

Capt. W. E. Rice, whose appointment as custodian of Sand Beach Harbor of Refuge took effect July 1st, 1898, to fill a vacancy caused by the resignation of Capt. Wagstaff, on account of failing health, was born of American parents, temporarily residing at St. Johns, N. B., April 28th, 1844. Soon after they removed to Buffalo, N. Y., and later to St. Clair, Mich., where, after a residence of upwards of twelve years, or until the breaking out of the Civil War, he, then less than 19 years of age, enlisted in Company E of the 22nd Michigan Volunteer Infantry and served until the close of the war. During service he took part in the various battles in which the regiment was engaged. He was mustered out of service July 14th, 1865, as first sergeant of his company, and then returned to St. Clair, his former home, and in the following October located at Alpena, Mich., engaging in the lumber business, beginning as a laborer and successfully filling the various positions in connection with that business up to that of superintendent and general manager of the extensive mercantile and lumbering firm of George L. Colwell & Co., located at Au Sable and Harrisville, Mich. This position he held for eight years. Having in the meantime invested his savings in the vessel business and realizing that it required his immediate attention, he resigned his position to assume personal charge of his vessel interests.

CAPT. W. E. RICE,
Custodian of Sand Beach Harbor of Refuge.

Having in his younger days had considerable experience in sailing, commencing as cook on the schooner B. G. Allen (Capt. L. L. Slyfield, who now resides at Port Huron, Mich.,), when but 12 years of age. Not having much inclination to remain in sailing vessels he soon turned his attention to steamers, and engaged as watchman and later as that of wheelsman for portions of several seasons. In 1881 he applied for and secured a license as master and first-class pilot, and soon after assumed command of the steamer Mackinaw, in which vessel he was interested, and sailed her until she was destroyed by fire in 1889, with the exception of one year that he was in command of the steamer Keystone. The spring following the loss of the Mackinaw by fire he bought an interest in the steamer Rhoda Stewart and took command of her. The winter following he became sole owner and master of the Stewart, sailing her until receiving his present appointment.

His large acquaintance with business men and lake masters no doubt aided him to a great extent in securing the appointment, and it is generally conceded on all sides that Capt. Rice is especially qualified for the position he now holds under the Government, which he so faithfully endeavored to uphold during the troublous times of the Civil War.

He—Why did you fail to recognize me on the street today? She—I didn't see you. He—that's strange. I saw you twice. She—Oh, that probably accounts for it. I never recognize a man in that condition.

THE AMERICAN SHIP WINDLASS COMPANY,

PROVIDENCE, R. I.

ESTABLISHED 1857.

MANUFACTURERS OF THE

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STEAM, ELECTRIC AND HAND.

Windlasses with Iron Towing Bitts for Tug Boats and Barges, Steam, Electric and Hand Winches, Gypsey Windlasses, Rudder Supporters, Chain Stoppers, Etc.

THE BABBITT PATENT STOCKLESS ANCHORS WITH SPROAT'S PATENT IMPROVEMENT.

THE SHAW AND SPIEGLE PATENT AUTOMATIC STEAM TOWING MACHINES.

Sixty-Seven of these Steam Towing Machines have been sold and delivered. It is the only **Automatic Steam Towing Machine.** The United States Government has fifteen of these machines. We build five sizes, to tow from 3500 tons to the largest battleship afloat.

The Bessemer Steamship Co. have nine of these machines and the Minnesota Steamship Co. eight, and we are now building another machine for each of these parties.

We furnish the most efficient, convenient and durable windlass in use. It gives greater strength with the same weight than any windlass made in the world.

Almost every vessel building on the lakes this year will have our Windlass and Capstan.

Send for illustrated catalogue.

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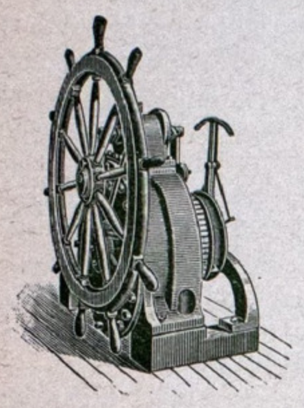

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Generates no heat in pilot house.

Has large hand wheel.

Can be changed from power to hand steering instantly.

A favorite with pilots.

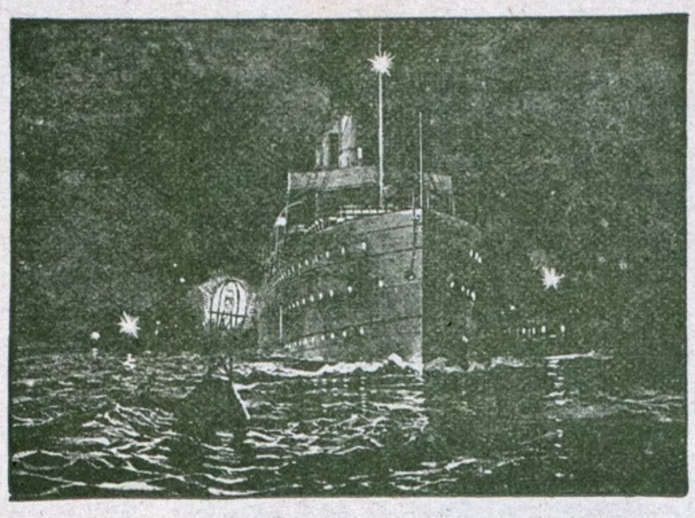
Send for References.

Queen City Engineering Co.

BUFFALO, N. Y.

Pintsch Gas Lighted Buoys.

Adopted by the English, German, French, Russian, Italian, and United States Light-House Departments for channel and harbor lighting. Over 800 gas buoys and gas beacons in service.



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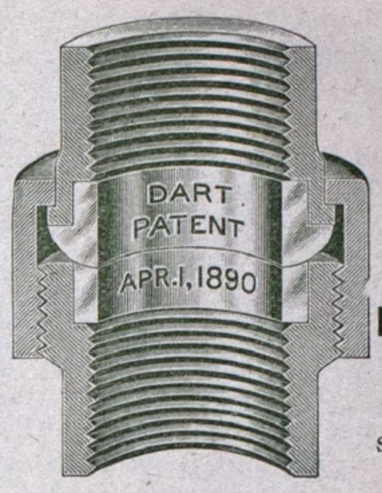

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21 Passenger Boats from 70 to 160 ft. long.
61 Steam Yachts from 50 to 180 ft. long.

U. S. TORPEDO BOAT "STILETTO."

Numerous freight and fishing steamers, launches and stationary boilers are giving most excellent results.

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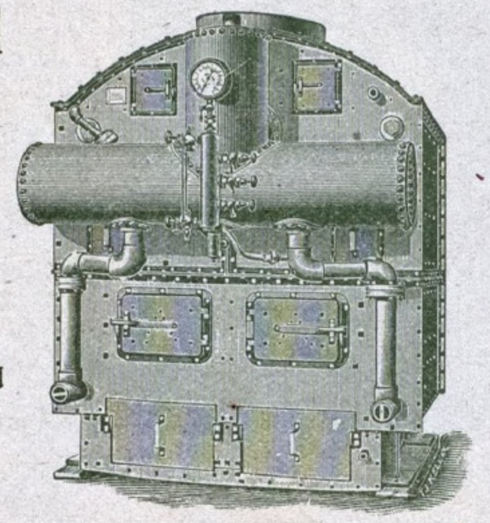

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DREDGING.

57 WADE BUILDING. CLEVELAND, OHIO.

ALL THE CREW GREW FAT.

The German bark Zion which arrived at Philadelphia recently from Fowey, England, brought a rather peculiar cargo. It consisted of 1,800 casks of china clay, but in addition there were put on board 300 casks of arsenic. This part of the cargo had a remarkable effect on the crew.

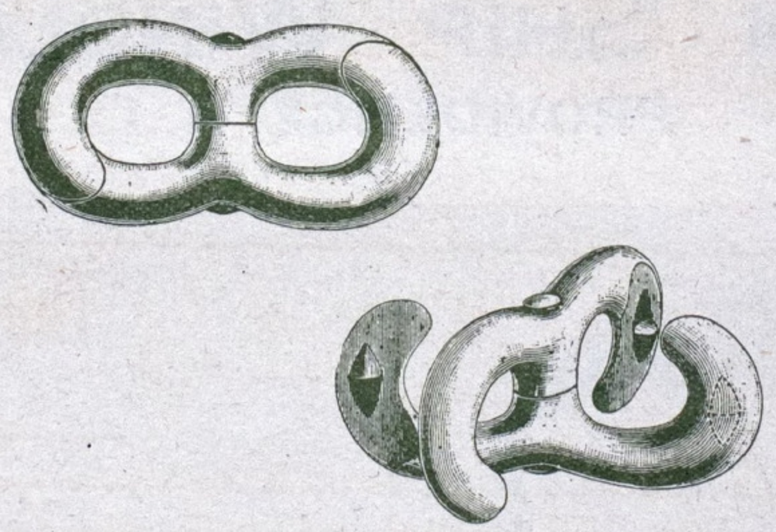
The fact that arsenic as well as strychnine helps the formation of adipose tissue when taken into the human system in minute particles is well known, and both drugs have become favorite tonics for convalescents. On board the Zion the men slept very near the large array of barrels containing the drug. They were stored in the hold near the forecastle and partially exposed to the rays of the sun which streamed in through the open hatch. When only about a week out from port one of the crew mentioned to his messmates that a peculiar and indescribable odor was coming from the casks containing the drug. It was not long after their attention had been called to it that they all noticed the same thing and, strange to say, noticed it all the more forcibly a week later. Several of the German tars became aware of the fact that they were filling out their clothes to a much greater extent than when they shipped. Many others, as days went by, became abnormally stout, in vast contrast to the former slim appearance which many of them presented before the land was left. One man gained, it is said, 25 pounds. Others were affected to a less extent. But the aggregate weight put on by the entire crew was little less than 400 pounds.

Several of the sailors were said to be scarcely recognizable by their former shipmates and associates when contrasted with the old days. The entire sudden taking on of avoirdupois is attributed to vapor which, generated by the action of the sun on the casks, was inhaled by the seamen as they slept and acted in precisely the same manner which it does when given as a tonic in a prescription. Capt. Hammes, or the officers who slept aft in the vessel, entirely removed from the arsenic, did not show any effect of the inhalation.

THE KEYSTONE OPEN LINK.

(Illustrated.)

The accompanying cuts represent the Keystone open link, a most valuable device. It is composed of two similar halves centrally pivoted on the same axis, and having on the inner face of each end a lug and a recess which when closed together interlock, and by abutting against each other prevent the lateral displacement or rending of the link when subjected to a strain. The manufacturers say it is the only open link on the market that is drop forged from bar steel, and for strength and durability it stands without a rival. Those who want a safe link, and one of



the best the market affords, and one that will break a chain of its own size, will examine the Keystone.

A chain is only as strong as its weakest link, and if you would not use a malleable or cast iron chain, why should you use a malleable or cast iron link to repair a chain? E. C. Atkins & Co., Indianapolis, Ind., Memphis and Chattanooga, Tenn., is handling this patented link.

A CENTURY-OLD BOULTON AND WATT ENGINE.

Dundee, Scotland, possesses an interesting and well-preserved example of a Boulton and Watt beam condensing engine, having the sun and planet wheel motion, which device, as is so well-known, Watt adopted for the conversion of reciprocating into rotary motion after having been forestalled by Wansborough in the matter of patenting the crank. The engine has been at work until lately within Douglas Bleachfield, some three miles from Dundee, but recently through a combination of unfortunate circumstances, the Bleachfield has been closed, and a displenishing sale of the machinery and plant taken place. The idea, however, of securing htis precious relic of bygone engineering for the Dundee Museum has for several years been kept in view by a number of gentlemen interested, and on observing that the engine was not mentioned in the catalogue of articles for sale, they set about ascertaining the intentions of the owners of the property with regard to it. It was then learned that negotiations had been taking place between the owners and a well-known American millionaire engineer, and that there was a probability of the engine finding its way to the United States at a high price. The owners have expressed themselves as being anxious that the engine should be retained in Dundee, and made certain advantageous proposals for its purchase. The necessary funds have now been raised, and the purchase has been effected, with the result that the engine will find a safe asylum in the Dundee Museum. The engine is believed, by those well informed in such matters, to be one of the best examples of Watt's earlier work, scarcely inferior indeed to the one in the British Museum. After having worked for a considerable time at Newcastle this engine was bought second-hand, and brought to Scotland in the year 1797, over one hunderd years ago. It is rated at 20 H.P., the steam cylinder being 20 in. diameter, and the length of stroke 48 in.

A FREE SHIP BILL.

Representative Handy, of Delaware, has introduced a "free ship" bill, which, he says, is a counter proposition to the bill recently proposed by Senator Hanna and Representative Payne for subsidies to American shipping. Mr. Handy's bill provides that "from and after the passage of this act it shall be lawful for all citizens of the United States to buy ships built in whole or in part in any foreign country and to have them registered as ships of the United States for employment in the foreign carrying trade, and when so purchased and registered and employed in the foreign carrying trade such ships shall be entitled to all the rights and subject only to the same regulations as are provided by law for the government and management of ships built wholly within the United States and controlled by citizens thereof.

Sec. 2. That no ship built in whole or in part in any foreign country and registered by citizens of the United States as provided in the preceding section shall be employed in the coasting trade or be engaged in the transportation of freight or passengers between ports of the United States.

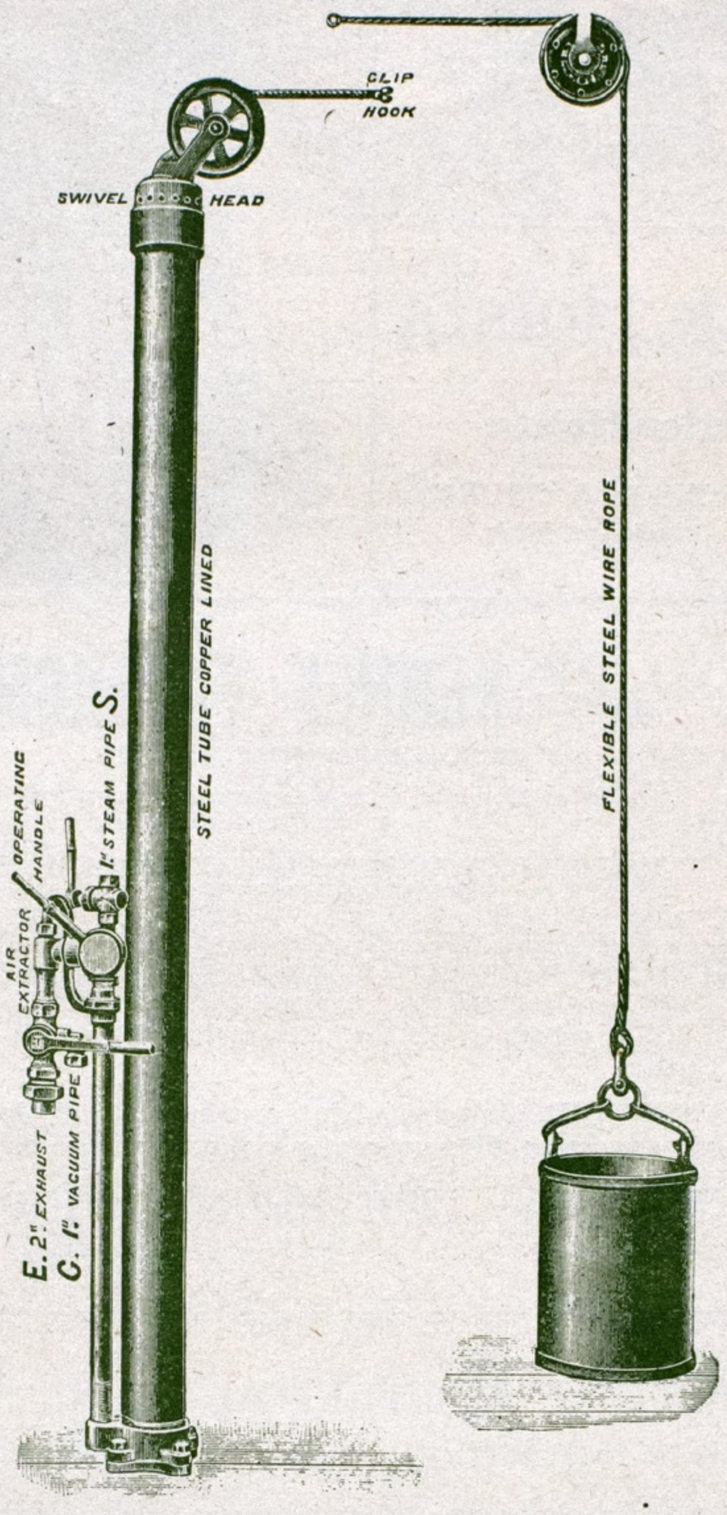
Sec. 3. That all of the revised statutes or parts of statutes and all acts or parts of acts and all special acts or parts of special acts enacted since the revision of the statutes so far as they may conflict with the provisions of this act, or any one of them, be and the same are hereby repealed.

CROMPTON'S IMPROVED ATMOSPHERIC SILENT ASH HOIST.

(Illustrated.)

In the accompanying illustrations, we show the improved type of Crompton's atmospheric silent ash hoist The machine was designed by a practical marine engineer, whose early training at sea and the experience then gained by the methods and means of raising ashes from the stokeholds of steamships that happened to be in vogue, has resulted in the production of an ash hoist that is sure to find favor. It is claimed that with the apparatus under notice all the trouble and annoyance formerly felt as to noise, etc., is overcome. The tubes of the hoist are made of steel 5½ in. diameter. The inner tube is of copper, which forms a lining very ingeniously secured to the steel tubes and hydraulic jointed in lengths to conform to whatever required lift may be desired for each ship. The piston with a flexible cup valve, works in this tube, and to this is secured the steel rope which is taken over the swivel head to the ventilators, and again over the usual pulley fixed in the ventiators, and so on to the stokehold plates from which ashes have to be raised. At the bottom of the hoist tubes is fixed a connection having a port-way opening to the bottom side of the piston. In this bottom piece is screwed a 1½ in. wrought-iron suction pipe (as shown in the illustration), at the top end of which is screwed on the instrument which gives all the power and action of the machine, and is composed of a combination compound cock, an air extractor, a 1 in. steam cock (asbestos packed), and a 2 in. exhaust cock, having a side branch for connection to the main condensers. These various connections are alluded to in the following references:—S, connect to main and donkey boilers; C, connect to main condenser (vacuum); and E, lead to waste steam pipe, or into the funnel by easy bends terminating in an upward direction. All the stoker has to do is to move the operating handle one-eighth of a turn; this admits steam through the compound cock to the air extractor and at the same time opens up communication with the bottom side of the piston in the tube. A powerful vacuum is at once formed, and the pressure of the atmosphere acting on the top side of the piston through the small air holes in the swivel head, the piston immediately descends and the wire rope with it, which being hooked on at the other end either to bags or buckets of ashes, it naturally follows that these must be raised up the ventilators, and no matter at whatever position of travel the piston is stopped at, the loaded bags or buckets remain quite safe and stationary, and can only be lowered by moving the operating handle one-quarter of a turn backwards, which at once cuts off the steam and at the same time admits a sufficient quantity of air to the bottom side of the piston to destroy the vacuum existing. It will be at once seen that to overwind the ash bags or buckets becomes a matter of impossibility; there is nothing to give way, break down, or get out of order.

The machine occupies very little space and will work at any angle or position found most convenient to fit it on



board ship. Generally the hoists are bolted upright to stokehold bulkheads, no skilled knowledge is required to run the hoist, and when the vessel is at sea all steam can be shut off the machine by turning the exhaust cock to the connections at the side, which brings into operation the vacuum of the main condensers. The machine under these conditions costs practically nothing to work at sea, a matter deserving of great consideration that should commend itself to shipowners. A prominent superintendent engineer of a line of steamers having every ship fitted with the hoists testifies that the piston cup valve which works in the tube lasts over six months; and, as the cost of each valve is but 50 cents, it practically means that the upkeep cost does not exceed $1.00 per annum, which the makers guarantee with every machine turned out. The patentees of this hoist are Messrs. T. Albert Crompton & Co., consulting engineers and surveyors, 86 Leadenhall Street, London, E. C.

THE FISH TRUST.

W. V. Booth, of Chicago, is out at last in an elaborate series of denials concerning matters and things touching the lake fish trust. He denies that the $5,000,000 company is a combination; he denies that it is in any sense a trust; he denies that the company has retained $2,500,000 of the stock to catch foreign investors. He says the company is engaged in the beneficent business of regulating the supply and distribution of fish. He further adds: "It would be practically impossible to form a fish trust, however, because every man who is so disposed can go to the lakes or the sea and fish and sell the product of his labor to the best advantage."

Mr. Booth also said that one of the reasons why the A. Booth Packing Co., Chicago, bought up the fish houses in the country was to distribute the fish so that all the markets would be adequately supplied. Heretofore this has not been the case. One market would receive twice as much as it would sell while another would not get half enough.

The monopolistic Booth Co., head of the fish trust, simply desire to corral the lake food product and this they are likely to do through the combination they have organized.

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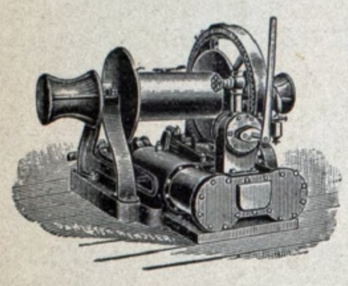

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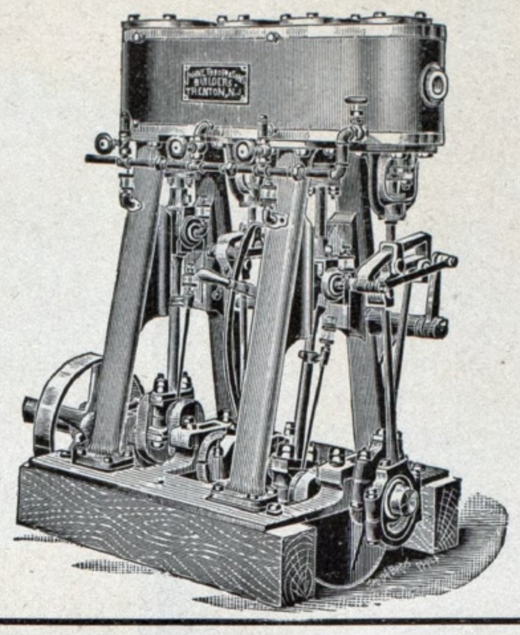

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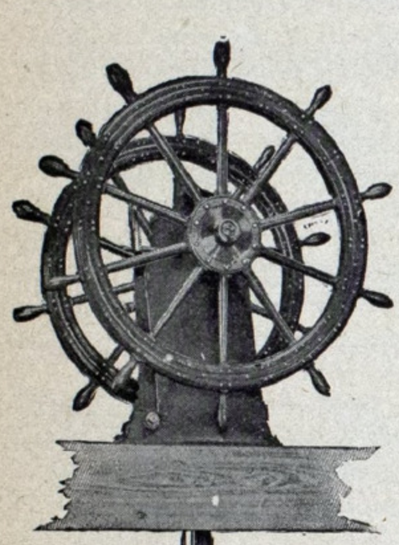

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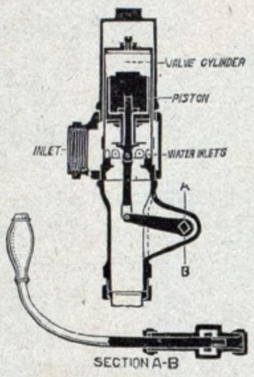

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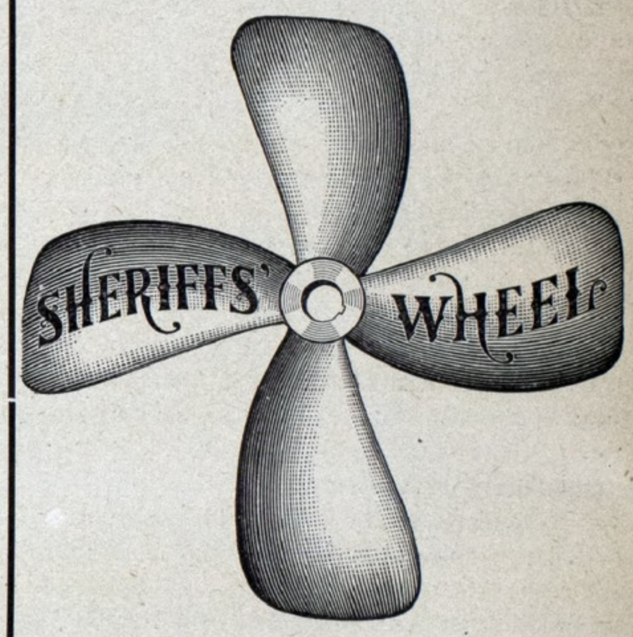

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